J.D. IRVING, LIMITED

2022

J.D. Irving, Limited Forest Supply Chain

ENVIRONMENT, SOCIAL AND GOVERNANCE REPORT

AUGUST 2023











THE HOME TEAM

CONTENTS

A MESSAGE FROM OUR CO-CEOS

A healthy working forest works for all.

While much has changed in 140 years, our time-tested formula has not; a great team working together to find a better way, every day.

As we reflect on our company's 140-year history, we are proud of the hard work and commitment of our employees and partners, both of whom have helped us achieve so much.

At J.D. Irving, Limited (JDI), we have always recognized the value of a diverse and resilient working forest. A healthy working forest is the foundation of a robust forestry economy. As the forest has grown, our business has grown, allowing us to operate in ways that benefit our customers, employees, communities and the environment.

We are proud to announce that for the third year in a row, JDI Forest Supply Chain has been declared carbon neutral. This achievement is a testament to our commitment to reducing our environmental footprint and striving for a sustainable future.

In our Environmental, Social, and Governance (ESG) Report for 2022, we also highlight our continued commitment to future generations, including our progress toward our sustainability goals, improving workplace safety and supporting and engaging the communities where we operate. This strong record is demonstrated by the capital investment in our pulp mill, which will reduce water consumption by 50 per cent; in our efforts to bring communities together at the International Can-Am Sled Dog Races and other community events; and in our long-term vision for sustainable forest management and conservation, committing 10,000 hectares of land to the Government of Canada's Target 1 Objective (the first and largest private land contribution in Canada).

We recognize that a greener tomorrow starts with the work we do today. That's why we will continue on a path of responsible forest management and environmental stewardship.

The past 140 years have shown growth and innovation, but our company's time-tested formula remains the same. We believe in investing in tomorrow through our great employees, and healthy, working forests, as well as by producing excellent products and giving superior service to our valued customers. It's a tradition we've carried on for generations.

Jim Irving
Co-CEO

Robert Irving
Co-CEO

From Left to Right: J.K. Irving - Chairman, Jim Irving and Robert Irving - Co-CEOs

ABOUT US

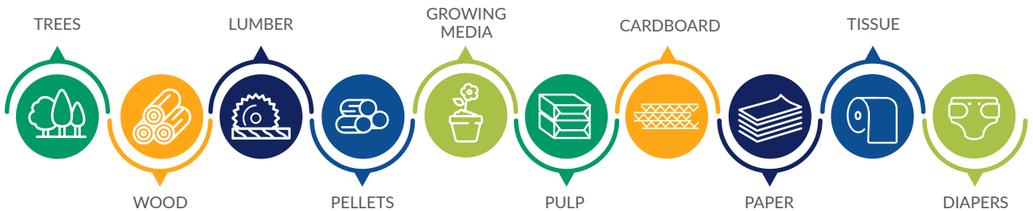
Since 1882, JDI has been committed to developing and delivering quality products and services. With head offices in Saint John and Moncton, New Brunswick and 19,000 employees across the company's diverse, family-owned operations in both Canada and the United States, JDI contributes to eight business sectors, including:

- Forestry and Forest Products
- Shipbuilding and Industrial Manufacturing
- Transportation and Logistics
- Retail and Distribution
- Construction and Equipment
- Consumer Products
- Food
- Agriculture

The JDI Forest Supply Chain[1] (Supply Chain) is made up of businesses in the Forestry and Forest Products and Consumer Products sectors, which encompasses all of our activities in our lumber, pulp and tissue businesses. The Supply Chain includes the land, forests, wood supply, tree nurseries, silviculture (tree planting and tending), logging operations, sawmills, peat and gardening products, pulp, paper, corrugated medium, consumer tissue and diaper manufacturing facilities. We transport our products by road, rail and sea through many of our affiliated transportation businesses.

Southern New Brunswick Tree Planters

Our operations in New Brunswick, Maine and Nova Scotia are rooted in an abundance of forest lands. As the second largest private timberland owner in North America, we own and manage 1.3 million hectares (3.2 million acres) of freehold (private) timberland and manage 1.1 million hectares (2.6 million acres) of government-owned Crown (public) land in New Brunswick (Crown License 7). We have a 25-year evergreen forest management and wood supply agreement with the Province of New Brunswick and receive additional wood supply from other Crown lands with long-term tenure associated with our manufacturing operations. We also purchase wood supply from large and small private land owners.



1] Includes operations wholly or partially in various Irving entities, including J.D. Irving, Limited, Irving Pulp & Paper, Limited, Irving Paper Limited, Irving Consumer Products Limited, Irving Consumer Products, Inc., The New Brunswick Railway Company, Grand River Pellets Limited, Juniper Organics Limited, Rothesay Paper Holdings Ltd., St. George Pulp & Paper Limited, St. George Power LP, Charlotte Pulp and Paper Co. Ltd., Irving Forest Services Limited, Miramichi Timber Holdings Limited, Allagash Timberlands LP, Aroostook Timberlands LLC, Maine Woodlands Realty Company, Maritime Innovation Limited, Irving Forest Products, Inc., and Forest Patrol Ltd.

OUR SUSTAINABILITY APPROACH

A working forest works for all.

At the root of our approach to sustainability is a productive, working forest. A working forest is one that allows for the sustainable use of forest resources while preserving and conserving forest ecosystems.

A working forest has always supplied the wood needed to produce forest products that our customers need and want through our Forest Supply Chain. The forest economy supported by the working forest enables our continued investment in people and in building local communities.

A working forest is both a diverse forest and a resilient forest. This promotes adaptation to a changing climate, the conservation of biodiversity and clean water. A working forest that is growing more wood than is harvested removes carbon dioxide from the atmosphere which enables our Forest Supply Chain to be carbon neutral.

Our 2022 ESG Report is a testament to the positive impact that the working forest has on our customers, communities, people and the environment; now and for generations to come.

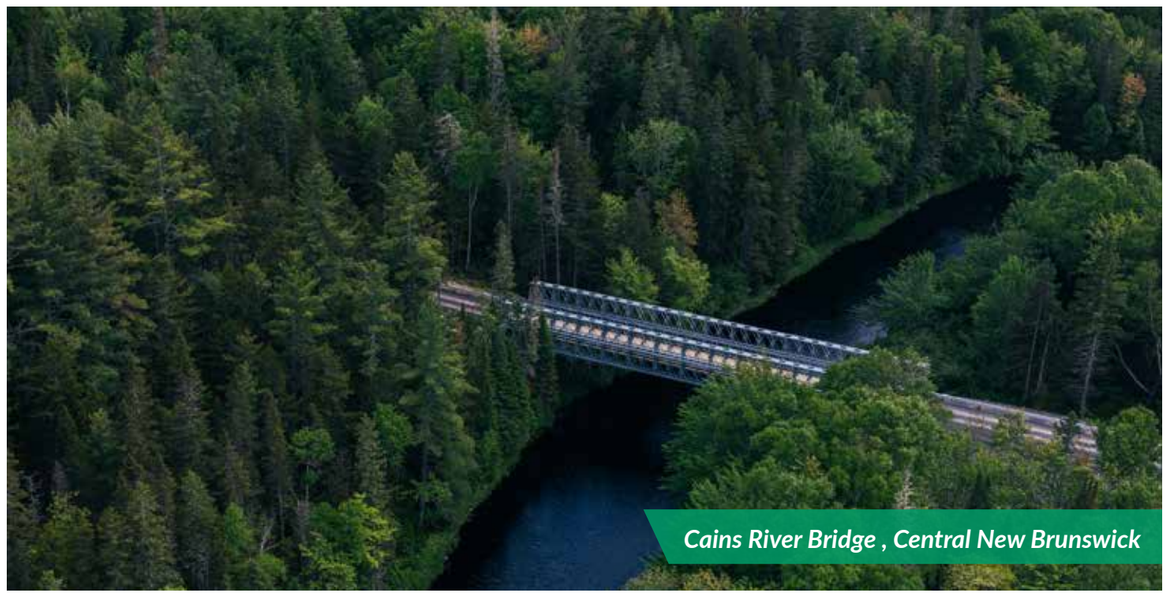
Miramichi River, Central New Brunswick Woodlands

ABOUT THIS REPORT

This is the Forest Supply Chain's third annual ESG Report which details ESG performance from January 1st, 2022 to December 31st, 2022, across JDI's Forest Supply Chain operations in Canada and the United States.

In our 2022 report, we continue to evolve our reporting on ESG activities. We have added disclosure on key metrics, Community Engagement as a material topic and reported on progress toward previously stated targets.

Consistent with past reports, our reporting content has been done with reference to the Global Reporting Initiative (GRI) and guided by Sustainability Accounting Standards Board (SASB) Pulp and Paper Product and Forestry Management industry specific standards; Task Force on Climate-Related Financial Disclosure (TCFD); and the United Nations Sustainable Development Goals (SDGs). Also consistent with previous publications, we have reported on several metrics from our sustainable forest management systems including the Sustainable Forestry Initiative® (SFI®) program standards, the Forest Stewardship Council® (FSC® C041515) standards and the International Organization for Standardization (ISO). All currency is in US dollars and all units of measurement are in metric unless otherwise stated.



Cains River Bridge , Central New Brunswick

ANALYST BAR

Throughout the report, an effort has been made to clearly link each topic with an area of focus or action. This includes describing how significant the topic is to stakeholders (materiality), as well as how the topic relates to ESG standards, internal policies, external assurance and long-term sustainability goals. Look for the following indicators throughout the report:

The five topics identified as **doubly material** to stakeholders are marked with this badge in the top section of the analyst bar. Doubly material topics fall into three categories, by the following section colours and bars on the right-hand page:

GOVERNANCE

SOCIAL

ENVIRONMENT

✓ Reporting Standard

This topic has been subjected to **LIMITED ASSURANCE by KPMG LLP.** This means the independent auditor has obtained sufficient and appropriate evidence to assure specific aspects of this report.

This topic is subject to **THIRD-PARTY CERTIFICATION** under ISO/SFI® and/or FSC® standards.

This topic is governed by an INTERNAL POLICY.

We have also identified several United Nations Strategic Sustainable Development Goals (SDG) aligned with our sustainability objectives in the communities where we operate.

In the Appendix you will find index tables referencing where disclosures are addressed in the report as they relate to the GRI, SASB and TCFD standards to which our reporting has been aligned.

Double materiality is defined as topics that impact both society and the environment (external stakeholders) and enterprise value (internal stakeholders).

Ramin Bastani, Irving Forest Services

OUR PERFORMANCE

We are committed to continuous improvement and transparency on our progress. Our sustainability targets fall into two categories: annual and forward-looking.

ANNUAL TARGETS

MATERIAL TOPIC	TARGET	PROGRESS
Ethics, Values & Integrity	Publish an annual ESG report for the Forest Supply Chain	●
Sustainable Forest Management	Maintain a 5-year average of forest growth at or above harvest	●
Sustainable Forest Management	Maintain third-party certification on all managed lands	●
Forest Conservation & Biodiversity	Maintain our conservation areas program	●
Safety	Continuous improvement towards Critical Incident Rate of zero	◑
Community Engagement	Maintain community donations program	●
Climate Action & Adaptation	Maintain carbon neutrality in the Forest Supply Chain through 2022 per PAS 2060:2014	●

FORWARD LOOKING TARGETS

MATERIAL TOPIC	TARGET	PROGRESS
Sustainable Forest Management	Double the spruce fir wood supply on freehold land by 2050	◑
Air & Water Quality Management	50% reduction in water consumption at Irving Pulp & Paper by 2028	◑
Air & Water Quality Management	25% water reduction from Irving Tissue operations by 2030	◑
Climate Action & Adaptation	Increase tree planting levels on freehold to 16 million trees by 2027	◑
Climate Action & Adaptation	Maintain carbon neutrality in the Forest Supply Chain through 2024 per PAS 2060:2014	◑
Consumer Packaging	Reduce virgin plastic intensity by 25% at Irving Consumer Products by 2030	◑
Waste Reduction & Management	Reduce manufacturing waste to landfill at Irving Tissue by 90 per cent by 2030, by repurposing to beneficial uses	◑

● Achieved ◑ On Track ⓘ Monitoring ○ Data Collection in Progress

Irving Paper Technical Team, Saint John, New Brunswick

Doaktown Sawmill, Doaktown, New Brunswick

2022 HIGHLIGHTS

Carbon Neutral Forest Supply Chain

$270 MILLION in capital investments

$1.7M in charitable donations (CAD)*

4 new firefighting air tankers ordered

Critical Injury Rate of *(per 200,000 hours worked)* **0.10**

18,754,777 seedlings planted

21,478 tonnes of waste diverted from landfill by Irving Tissue

22% of lands managed for primary purpose of conservation

100% of lands SFI® or FSC® certified

156 immigrant employees and family members settled for woodlands/sawmills operations

*Donations from Forest Supply Chain only.

The Honourable Steven Guilbeault,
Minister of Environment and Climate Change

10,000 HECTARES committed to conservation

$4.3M invested in newcomer housing

106 additions to our Conservation Areas Program

** For more information see page 71*

CARBON TRUST CERTIFIED
The carbon footprint of this product has been certified carbon neutral

Royale® Tissue products are certified Carbon Neutral

$108M environmental treatment facility project started at IPP

56% of energy from renewable sources

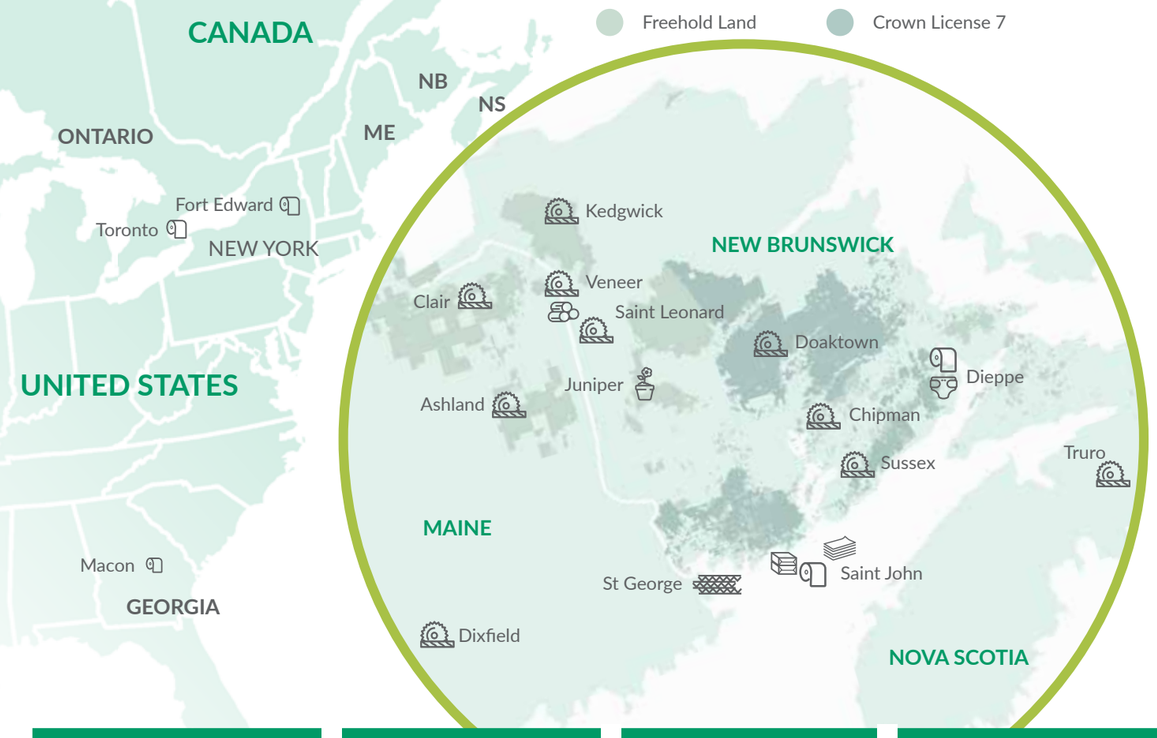
2022 PRODUCTION

We take great pride in sustainably managing our Forest Supply Chain, exceeding the expectations of our customers in every facet of our business.

Our Supply Chain is designed to maximize the value from the naturally diverse forests where we operate. The figures below represent 2022 annual production from our Sawmills, Pulp and Paper, Tissue and Personal Care divisions.

LAND UNDER IRVING MANAGEMENT (HECTARES)
2,377,640

FSC® applies to Maine Woodlands Only



TISSUE

365,435
Tonnes Produced

PRODUCTS
Bath & Facial Tissue/ Paper Towel

DIAPERS

13,993
Tonnes Produced

PRODUCTS
Baby Diapers & Pants

GROWING MEDIA

21,234
Tonnes Produced

PRODUCTS
Peat Moss & Growing Media

PELLETS

138,850
Tonnes Produced

PRODUCTS
Industrial Wood Pellets For Fuel/Heat

LUMBER

1,064,677
MFBM Produced

PRODUCTS
Structural & Appearance Grade Lumber

PULP

320,328
Tonnes Produced

PRODUCTS
Northern Bleach Softwood & Hardwood Kraft Pulp

PAPER

396,564
Tonnes Produced

PRODUCTS
Printing Paper

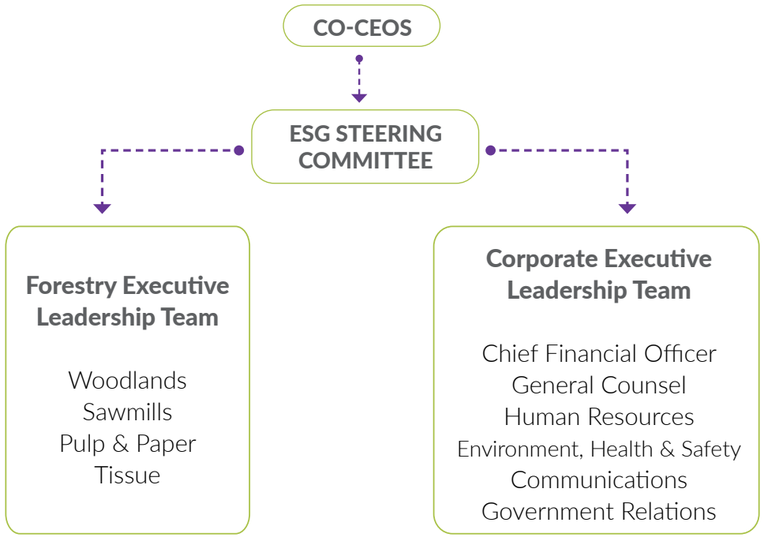
CORRUGATED

175,586
Tonnes Produced

PRODUCTS
Corrugated Medium/ Linerboard

GOVERNANCE AND MATERIALITY

We have enhanced and formalized our sustainability strategy with the establishment of an ESG Steering Committee. The committee is comprised of senior corporate leaders and operating executives from each of the businesses in the Forest Supply Chain. The committee formally meets annually and reports its progress directly to the co-CEOs.



ROLES AND RESPONSIBILITIES OF THE ESG STEERING COMMITTEE

The ESG Steering Committee is comprised of functional expertise from the executives in each of the Forest Supply Chain divisions – Woodlands, Sawmills, Pulp & Paper and Consumer Products – and enabling process expertise from the corporate executive teams – Finance, Legal, Human Resources, Safety, Communications and Government Relations.

Executives bring forward the expertise of their divisional management teams on the topics of sustainable forest management, manufacturing customer needs, energy use, air and water impact, waste, operations, stakeholder expectations and community partners. Together, they are responsible for sharing ESG-related information with their management teams to ensure information is communicated to all employees and linked to operating plans for execution.

Working with the divisional management teams, executives continually identify risks and opportunities in each business, including those associated with climate change. Risks and opportunities such as costs, products, markets, capital projects and workforce are reviewed annually and quarterly with the co-CEOs. ESG-related risks and opportunities identified in each operating division are brought forward to ESG Steering Committee members and are also reviewed with the co-CEOs during annual budgeting sessions and quarterly performance reviews.

In addition, the Steering Committee is responsible for producing an annual ESG report to ensure our sustainability approach is communicated to our internal and external stakeholders. The Steering Committee members drive continuous improvement of the reporting process, as it evolves and matures.

Chipman Garage, Chipman, New Brunswick

Four major topics that informed ESG-related discussions in 2022:

1 CARBON ACCOUNTING AND CARBON NEUTRALITY

A key area of focus across the Forest Supply Chain is the work to understand greenhouse gas (GHG) emissions from operations, CO_2 removals from forest lands and transfer of CO_2 to wood products. This effort identifies opportunities to reduce our emissions and increase removals across the Supply Chain.

Our Forest Supply Chain has been declared Carbon Neutral under the international reporting standard, PAS2060:2014 since 2020. We also verified our tissue product carbon footprint from cradle-to-grave. Through the balance of the cradle-to-grave emissions of our tissue products and carbon removals from our forests, our tissue products are verified as carbon neutral by The Carbon Trust, a global climate change consultancy, specializing in the verification of carbon footprints.

2 WORKFORCE AVAILABILITY

The labour market continues to experience rapid change due to shifting demographics, an aging workforce, changing interests of the workforce and the rural nature of our operations. Attracting and retaining talent at all levels of the organization remains a key focus for our success. Participating in Equity, Diversity and Inclusion initiatives, federal immigration programs for critical workers and supporting newcomer settlement in our region through investments in housing, language training and education has been a huge part of our workforce development work in 2022.

Communicating our ESG story for the purpose of attracting, recruiting and retaining talent was also at the forefront of our discussions this year.

3 LOCAL STAKEHOLDERS

Policies and operating approvals related to forestry, energy, environment, immigration and taxation are often informed at a local level. Inadequate or incorrect information can lead to poor public policy, which can impact the industry's ability to operate. In 2022, we added Community Engagement as a priority topic and, as part of this, offered highlights of our strategy for engaging with local stakeholders.

4 REPORTING AND TRANSPARENCY

We continue to evolve and mature our reporting to enhance transparency, improve disclosure quality and align with ESG reporting best practices. In 2022 the following actions were taken to enhance ESG disclosure:

- Added Community Engagement to list of priority topics.
- Additional disclosure around progress on targets.
- Additional assurance on ethics and community donations.
- Linked reporting to standards set by TCFD, GRI and SASB in content indexes.
- Included performance highlights in report and moved data tables online for general audiences.

Rachel Jefferson & Mark Beaton, Finance Division, Saint John, New Brunswick

Materiality and stakeholders

The five material topics that make up this report are tied to one of the three pillars: Environment, Social and Governance. These material topics were identified by internal and external stakeholders and partners during a comprehensive materiality assessment conducted in 2021 by independent, third party Nanos Research. During this process, a wide group of stakeholders was engaged via online surveys and one-on-one interviews to provide their input on 18 standard topics.

Our stakeholders are made up of a diverse range of individuals and organizations that have an interest in our operations. Internal and external stakeholders were key to our 2021 materiality assessment and identifying the doubly material topics that make up this report:

1. **Sustainable Forest Management**
2. **Ethics, Integrity & Values**
3. **Safety**
4. **Air & Water Quality Management**
5. **Forest Conservation & Biodiversity**

To align with TCFD, we report on climate action, adaptation, greenhouse gas emissions and energy use. We also share highlights from the year across the range of ESG topics and report additional information in the Appendix of this report.

We continue to be guided by results of the 2021 materiality assessment, and monitor all 18 ESG topics. We are committed to refreshing the assessment periodically to ensure our disclosure is aligned with shifting stakeholder priorities.

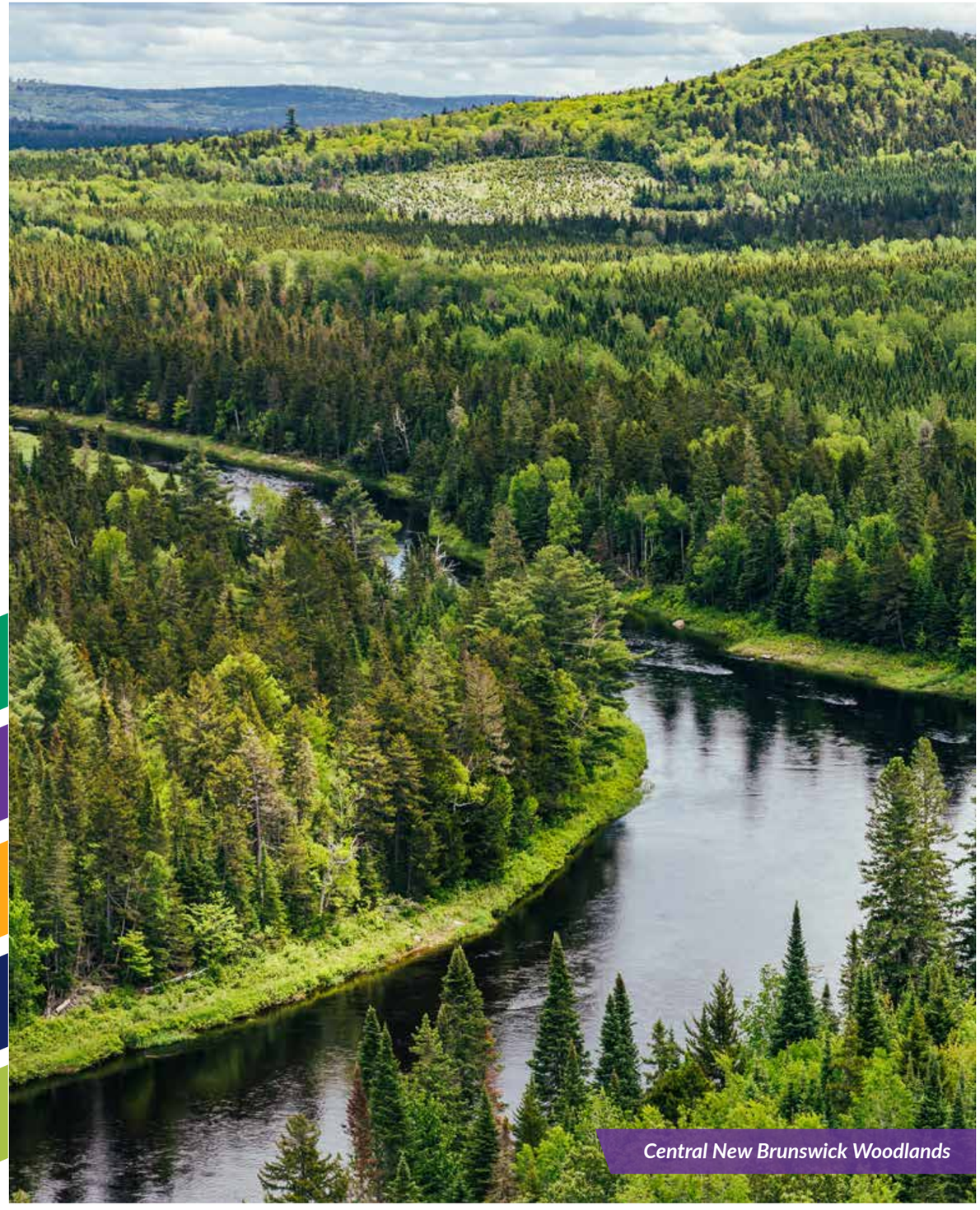
NANOS

IMPACT ON SOCIETY & THE ENVIRONMENT – EXTERNAL STAKEHOLDERS

- Banking & Insurance
- Government Regulators
- Academia
- Local Communities
- NGOs & ENGOs
- Indigenous Rightsholders
- Customers
- Suppliers & Contractors

IMPACT ON ENTERPRISE VALUE – INTERNAL STAKEHOLDERS

- Divisional Leadership & Finance
- Human Resources
- Woodlands Leadership
- Sawmills Leadership
- Pulp & Paper Leadership
- Consumer Products Leadership



Central New Brunswick Woodlands

JDI FOREST SUPPLY CHAIN ESG TOPICS	INDEPENDENT STANDARD		
	GRI*	SASB*	TCFD*
Energy Use & GHG Emissions	✓	✓	✓
Air & Water Quality Management	✓	✓	✓
Sustainable Forest Management	N/A**	✓	✓
Forest Conservation & Biodiversity	✓	✓	✓
Chemical Use	N/A	N/A	N/A
Climate Change & Adaptation	✓	✓	✓
Waste Reduction & Management	✓	N/A	N/A
Consumer Packaging	✓	✓	N/A
Safety	✓	N/A	N/A
Health & Wellness	✓	N/A	N/A
Diversity, Equity & Inclusion	✓	N/A	N/A
Attracting, Developing & Retaining Talent	✓	N/A	N/A
Indigenous Awareness & Inclusion	✓	✓	N/A
Economic Impact, Competitiveness & Innovation	✓	N/A	N/A
Community Engagement	✓	N/A	N/A
Ethics, Integrity & Values	✓	N/A	N/A
Data Privacy & Cybersecurity	✓	N/A	N/A
Supply Chain & Sourcing Policies	✓	✓	N/A

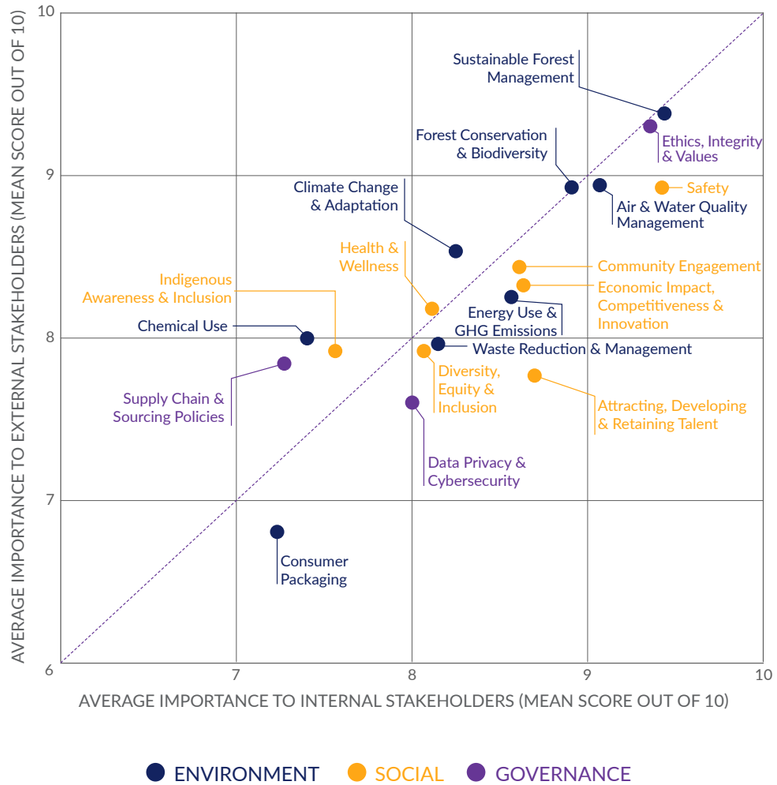
* GRI = Global Reporting Initiative | SASB = Sustainability Accounting Standards Board | TCFD = Task Force on Climate-Related Financial Disclosure
** N/A = not applicable to relevant standard

Brendan Kilfoil, Irving Paper, Saint John, New Brunswick

IMPORTANCE OF ESG TOPICS MAP

External vs internal stakeholder views

This chart shows the average importance of ESG topics for internal and external stakeholders. The line represents equal importance among internal and external stakeholders. ESG topics over the line are more important to external stakeholders than internal stakeholders and vice versa for those data points under the diagonal midline. The further away from the line a data point is, the larger the difference of opinion between internal and external stakeholders.



NANOS

For both internal and external stakeholders, Sustainable Forest Management (9.4, each), Safety (9.4, and 8.9, respectively), Ethics, Integrity & Values (9.3, each), Air & Water Quality Management (9.1, and 8.9, respectively) and Forest Conservation & Biodiversity (8.9, each) are the most important ESG topics as it relates to the JDI Forest Supply Chain.

Irving Tissue, Macon, Georgia

ETHICS, VALUES AND INTEGRITY

Highlight: Girls STEM Up

We know that a diversity of ideas, genders and cultures is what makes our team better. To that end, we're investing in specific initiatives designed to expand the number of women working in STEM (science, technology, engineering, math) roles across our operations.

In 2022, we partnered with Girls STEM UP for their BREAKTHROUGH Conference. Girls STEM UP is dedicated to increasing awareness and engagement of young women in science, technology, engineering and mathematics careers. The conference targets young women and provides an opportunity to network, and share ideas and experiences as women in STEM.

Through our partnership with Girls STEM UP and initiatives like Women in the Woods and the New Boots program at New Brunswick Community College, we hope to continue to drive conversations about the opportunities and barriers facing women of all ages from pursuing education in STEM and skilled trades and to find ways of increasing participation in these careers.

DOUBLY MATERIAL TOPIC

REPORTING STANDARD

- ✓ GRI 2-7
- ✓ GRI 2-15
- ✓ GRI 2-27
- ✓ GRI 205-2
- ✓ GRI 205-3
- ✓ GRI 206-1
- ✓ GRI 418-1

GOVERNANCE

- Business Code of Conduct
- IT Policy
- Safe & Respectful Workplace
- Drug & Alcohol Policy
- Business Code of Conduct Compliance

STRATEGIC SDGS

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

ETHICS, VALUES AND INTEGRITY

CUSTOMER FOCUS · PEOPLE & TEAMWORK · QUALITY PRODUCTS & SERVICE · RESULTS DRIVEN · CONTINUOUS IMPROVEMENT & INNOVATION · INTEGRITY · FAST & FLEXIBLE · HEALTH, SAFETY & ENVIRONMENT

"The Irving Way" is the foundation of who we are and how we operate. It reflects what we stand for and represents our ongoing commitment to our customers, with a promise that we can be counted on.

The Irving Way also reflects how we interact with our employees. We measure our performance against employee expectations annually with third-party employee engagement surveys to understand our strengths and identify opportunities to improve.

These eight core values shape our thinking and approach to sustainability by:

- Guiding our daily operations
- Clearly defining our culture
- Aligning with performance expectations
- Providing a solid foundation for strategic direction
- Creating strong business sustainability and growth

ETHICS AND INTEGRITY – OUR POLICIES

We take a comprehensive approach to ethical business practices and integrity throughout our operations. We do the same for governance and how we conduct ourselves, placing the same level of expectation on our employees and suppliers to deliver on our shared value proposition.

Responsibility for our governance and legal compliance is administered and digitally tracked by our General Counsel and legal department.

Every employee hired to work at our company must complete all specialized training required to meet their job function and comply with the following governance policies:

- Business Code of Conduct
- Health Safety Policy
- IT Policy
- Safe & Respectful Workplace
- Drug & Alcohol Policy
- Safety Orientation
- Whistleblower Policy

Publish an annual ESG report for the Forest Supply Chain

OUR BUSINESS CODE OF CONDUCT

The Business Code of Conduct is comprehensive and covers the areas of business principles, business ethics and company information and property. At its heart, the code gives employees a guiding principle: conduct the affairs of the company with integrity at all times. In its details, the policy outlines the standard of conduct expected of an employee and is updated regularly to reflect current practices and applicable laws. Key topics include:

- Conflicts of Interest
- Gifts and Gratuities
- Insider and Other Trading
- Relationships with Competitors
- Business Records
- Anti-Corruption and Bribes
- Confidentiality
- Information Security
- Company Property and Resources

It is our goal to have all new employees sign the Business Code of Conduct upon employment as part of their orientation process. Subsequent to this, on an annual basis, employees with regular JDI network access are required to reconfirm their understanding of and compliance to the Business Code of Conduct, including any updates to the policy.

In 2022, **88 per cent of all new employees**[1] within the Forest Supply Chain signed off on the Business Code of Conduct policy[2]. Management has identified gaps in compliance with signing off on the policy and will review the process and taking corrective action to address the gaps. As well, in future years, we aim to expand the scope of this metric to demonstrate that all employees annually reconfirm their commitment to adhering to the policy.

WHISTLEBLOWING AND GRIEVANCE SYSTEM

Consistent with our values, we encourage all employees who witness any unethical behaviours or harassment at work to report directly to our anonymous whistleblower program. Our JDI Tips Line, "See Something – Say Something", is staffed 24 hours a day, seven days a week by trained security officers from our in-house security monitoring centre. All anonymous tips are reviewed and actioned by an independent investigator. The JDI Tips Line is advertised throughout the organization on posters, and promoted in presentations given by our security staff. Physical security of all buildings and assets is also managed by our professional internal security team, including a team of investigators.

MAINTAINING PUBLIC INTEGRITY

Transparency is a key element of integrity and ethical behaviour. We are committed to sharing information with stakeholders. Following the mandate of the Steering Committee, the Forest Supply Chain will continue to publish an ESG Report annually. We regularly meet with various stakeholder groups, host open houses and offer tours with our staff. We continue to enhance our social media presence to communicate and build relationships with a new, wider audience. Our interactions with federal, provincial and state governments are in full compliance with lobbying activity regulations and are reported as required in the applicable lobbyist registry.

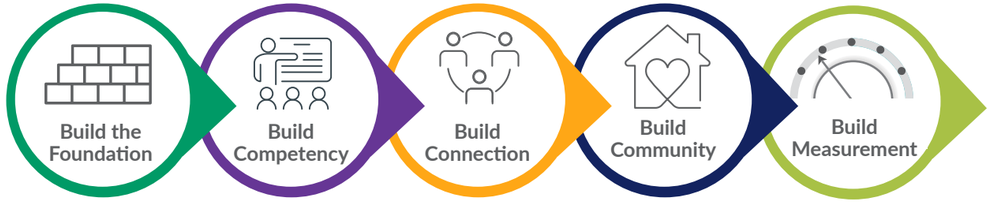
[1] "New employees" as defined in this scope are salaried, full and part-time employees within the Irving Forest Supply Chain, excluding re-hired employees.

[2] Of the 88% of new employees considered in this statistic, 5% of these were unionized employees in Fort Edward who signed off on the Code of Ethics, rather than the Business Code of Conduct policy.

DIVERSITY, EQUITY AND INCLUSION

Our values of Integrity and People and Teamwork are rooted in working together and ensuring everyone is treated with fairness and respect, while belonging and inclusion are key components to delivering on our employee experience strategy. Our focus is on creating an inclusive environment where everyone feels welcome, appreciated and encouraged to contribute.

ROAD MAP TO INCLUSION



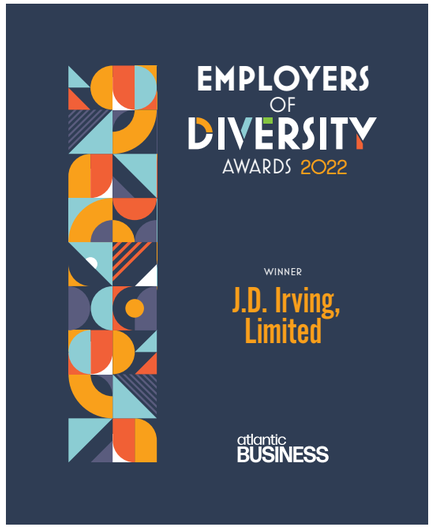
OUR PROGRESS

In 2022, we matured our Inclusion Index within our annual Employee Engagement Survey that allows us to measure our progress towards an inclusive workplace and sense of belonging. We hosted panels on Diversity, Equity and Inclusion (DEI) topics, led local conversations and invested in our competency through our internal DEI Training Certificate Program available to all employees. We are committed to attracting talent from under-represented groups. This is why we continue to support programs like New Boots and Girls STEM UP, to advance opportunities for women in non-traditional roles; invest in immigration programs for newcomers, to make sure they stay, thrive and make our communities their home. These programs play an important role in developing a diverse workforce pipeline.

With a new dedicated Corporate Director of DEI, we are working on implementing our strategy to advance our DEI journey including:

- Addressing systems and policies to ***build the foundation***.
- Working to ***build organizational competency.***
- Creating opportunities to ***build connection*** and ***build community*** inside and outside of our business.
- ***Building measurement*** tools to make progress.

We know creating an inclusive workplace drives attraction, retention and contributes significantly to a positive employee experience.



Consecutive Winner: Annual Atlantic Business Magazine Employers of Diversity Award

SAFETY

Highlight: Technology Supporting Safer Operations

Heavy equipment and challenging sightlines are part of the nature of sawmill yard operations. To reduce the risk of incidents and to protect the people working on the ground around such heavy equipment, two of our sawmill sites have implemented heavy proximity sensor systems in outfeed loaders. With this new system, every person walking in the yard wears a proximity sensor tag. When a loader comes within a certain distance of these tags, the pedestrian and loader operator both receive a warning, alerting them to perform a safety scan. These new sensors will reduce the risk where machinery and human resources interface.

DOUBLY MATERIAL TOPIC

REPORTING STANDARD

- ✓ GRI 403-1
- ✓ GRI 403-2
- ✓ GRI 403-4
- ✓ GRI 403-5
- ✓ GRI 403-7
- ✓ GRI 403-9

GOVERNANCE

- CIR, RIR, LTIR
- Health & Safety Policy
- Safety Orientation

STRATEGIC SDGS

8 DECENT WORK AND ECONOMIC GROWTH

SAFETY

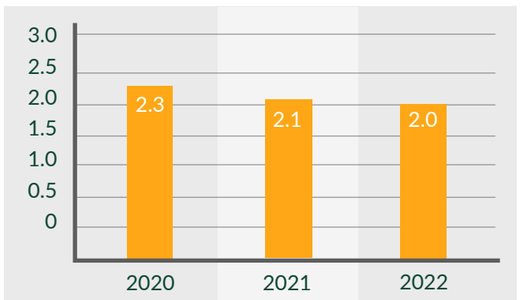
We are driven to eliminate workplace injuries and illnesses through proactive safety management and by sharing best practices. Our goal is to maintain a safe working environment for all employees and individuals working on our sites and to continually improve our health and safety management system to prevent incidents, injuries and illnesses. We achieve this goal by ensuring the effectiveness of our management system, leveraging technology and analytics, taking care of our people and using leading indicators to ensure we have set the right path.

OUR INJURY PERFORMANCE

We have implemented standard safety definitions, based on the United States Occupational Safety and Health Administration (OSHA) criteria for injury recording, across the organization to measure, evaluate and compare our injury statistics. **The *Recordable Incident Rate (RIR)* is the industry standard for safety performance. It measures the number of recorded injuries per 200,000 hours.** This is a rear looking metric, focused on past performance. It includes injuries that require treatment beyond first aid, where medical attention is required to treat the injured worker. The recorded injuries range in severity from minor to severe.[1,2]

Decrease in overall recordable incident rate of **13 per cent since 2020**

RECORDABLE INCIDENT RATE



Management Analysis - Since 2020, we continue to make progress in our injury prevention activities with a ***decrease in overall recordable incident rate of 13 per cent.***

CRITICAL INJURY RATE OF ZERO

1] For 2022 the injury statistics was assessed as of April 24, 2023 for the calculation of RIR, LTIR, and CIR.

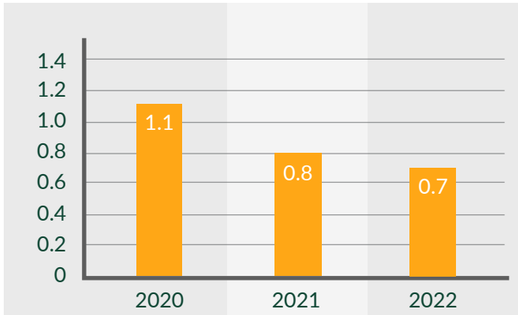
2] The 2020 and 2021 injury statistics for RIR and LTIR have been re-stated and were not subject to assurance.

In addition to the recordable incident rate, we review ***Lost-Time Injury Rates (LTIR)*** and ***Critical Injury Rates (CIR***) as key safety metrics to provide better context to the type and severity of injuries.

Lost-Time Injury Rate (LTIR) measures the number of injuries where employees have lost-time working or have missed their next regularly scheduled shifts due to a workplace-related injury. Lost-Time Injuries are a subset of the Recordable Incident Rate. In 2022, 34 per cent of all recordable injuries were lost time. In 2021, 39 per cent of all recordable injuries were lost time.

The Lost-Time Injury Rate has **decreased by 36 per cent** since 2020.

LOST-TIME INJURY RATE



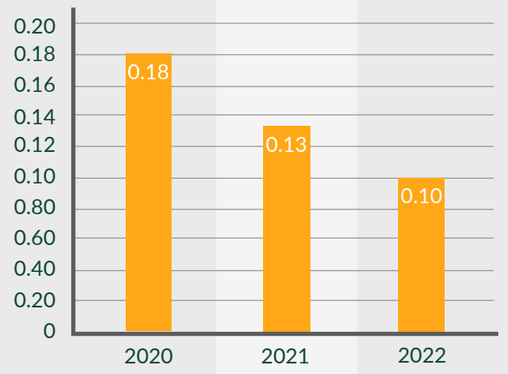
Management Analysis - In the last three years, the rate has decreased by 36 per cent. This improvement comes from a decrease in the injury rate overall and an increased focus on understanding the functional abilities of injured employees in relation to the functional requirements of each position in our mills. An evidence-based approach to understanding what injured employees can do enables employees to safely remain in the workplace during rehabilitation with appropriate modifications. Research has demonstrated that employee's psychological and physical conditions are best supported through structure, social interaction and support in the workplace, while safely performing meaningful and productive work.

Stemming from our focus on serious injuries and fatalities, we adopted an internal ***Critical Injury Rate*** measure to help identify injuries that were more severe and/or had the potential to result in a more serious injury. ***Compared to recordable incidents, these injuries are more severe and include concussions, fractures and deep lacerations.*** Similarly, all critical injuries are recordable incidents.

The focus on critical injuries isolates those that have serious consequences and impacts on individuals, and require the highest levels of investigation and corrective action. A focus on and clear understanding of the critical injury rate informs the development of practices and strategies to prevent these types of incidents.

The only logical target for an acceptable number of injuries is zero. Although a difficult metric to achieve, it remains our goal to achieve a rate of zero critical injuries – the most severe and serious of all our recordable injuries. Most organizational targets in health and safety are usually tied to decreases in incidents (a decrease in incident and injury rates, fewer motor vehicle incidents, fewer fires, etc.), but we believe one critical injury is one too many and will continue to take preventative action to mitigate risk and hazards with high injury potential.

CRITICAL INJURY RATE



Management Analysis - Critical injuries are the most serious of workplace injuries, which is why we increase our focus on hazards and near misses that have severe injury or fatality potential. When we control these hazards, we can prevent critical injuries. In 2022, 5 per cent of all recordable injuries were critical.

IMPROVING OUR PROCESS FOR INJURY CLASSIFICATION

As part of our continued evolution and maturity in safety management, we are now combining multiple data sources. This includes information about medical treatment and wage loss for injured employees from the worker's compensation boards, and our own internal incident and injury reporting processes. With this new standard, we completed a thorough review of our classification of the severity of workplace injuries from 2020 to 2022 (inclusive) to ensure consistency in reporting.

Updates were made to the number of incidents classified as recordable, lost time or critical due to this review. To align to this new reporting process, we have restated injury performance results for these three years and we will continue to apply this level of data quality and integrity in future reporting.

It is important to have soft tissue injuries referred to physiotherapy as early as possible to mitigate the severity of the injury and expedite rehabilitation. Our new standard for reporting captures these referrals to provide insights for ergonomic improvements.

HAZARD IDENTIFICATION AND RISK ASSESSMENT - ACTIVELY IDENTIFYING HAZARDS AND REDUCING RISK

Engaging employees in health and safety is a management practice which is also an essential aspect of our safety management system. When employees and their supervisors participate in the safety system, they take responsibility and ownership for health and safety, which in turn, makes workplaces safer.

Our employees are encouraged to identify workplace hazards and unsafe or dangerous conditions that could cause injuries and to report observations and near misses. The hazard identification participation rate calculates the percentage of employees that communicate a condition to their supervisor each period. The goal is to increase employee participation and proactively identify and correct conditions that can result in injury.

Developed in 2017, the hazard identification participation rate has now become one of the key organizational metrics used within our safety management system. More importantly, it is an indicator of how our employees are helping to make workplaces safer.

To help manage reported hazards, JDI has implemented the Risk Assessment Priority Index (RAPI), a prioritization method to ensure that higher risk hazards are given higher priority. Hazards identified by employees are ranked by their risk and potential for serious injury. The most severe hazards or unsafe conditions, Critical Hazard IDs, are identified and assigned corrective action.

By focusing on identifying hazards with potential to cause injury and prioritizing those hazards that can create severe injury by using RAPI, we are actively working to reduce risk in our operations. RAPI is about removing the risk of injury before the injury happens – a leading activity to ensure focused prevention activities.

Maddison Dockum, Irving Tissue, Fort Edward, NY

Safety is one of our core values that has guided us for over 140 years. We have a passion for safety and protecting our people, mentally and physically, because it's our people who allow us to have success. Nothing we do at work is more important than our employees going home safely to their families and loved ones."

- Robert K. Irving

SAFETY MANAGEMENT SYSTEMS

In our organization, safety is managed at a site/divisional level with guidance from corporate safety departments in our head offices. The deployment of the management system framework is a site responsibility.

In 2022, we renewed our focus on developing and maturing our health and safety management systems. From setting objectives and managing legislative requirements, to leveraging the use of enabling technology, our organization put focus on the management system in 2022. We have shifted our thinking from reactive to a more proactive approach ensuring the proper foundation and structure is in place to manage all aspects of health and safety and prevent incidents.

In 2022, the company stress-tested the regulatory compliance of our safety systems through mock incident investigations and launched a management system framework for the divisions to align with.

The Safety Management System Maturity Assessment is an evaluation tool created by JDI that drives a high calibre of safety management and system improvements.

JDI 2022 HEALTH AND SAFETY SUMMIT

In November, for the first time since 2017, we held a two-day summit for more than 100 internal health and safety professionals. The summit was a hybrid event – held in person with virtual participants. With the theme ***Vision 2025 – Shifting the Safety Paradigm***, the summit focused on the continuous development of health and safety management systems, increasing employee participation in safety and demonstrating the usage of technology available at the company as an enabler for managing safety.

SAFETY TRAINING

Health and safety training is a leading indicator for safety management systems and often a regulatory requirement. We have a well-managed process that ensures all necessary employees are assigned, scheduled and receive the appropriate safety training for their position as well as all legislated health and safety and regulatory compliance training. Internally, we measure the percentage of training completed compared to assignments and we have developed enhanced tracking and measurement tools to ensure training is current and completed. Training is delivered through in-person classroom, in-person practical and through virtual training sessions.

COMMUNITY ENGAGEMENT

Highlight: Rebuilding Rural Communities with Immigration

Across our operations, attracting skilled workers to critical roles continues to be a focus. To meet the needs of our operations, we have been investing in welcoming newcomers to our region. This includes investing in language training, housing, education and transportation, in partnership with associated settlement agencies across New Brunswick.

In 2022, JDI partnered with the provincial and federal governments to develop the New Brunswick Critical Worker Pilot program, an immigration program created to attract skilled workers to Atlantic Canada. This pilot program is employer-driven and allows participating companies to hire more newcomers to fill jobs and contribute to local communities. Over the next three years, we expect to settle more than 900 new immigrants plus their families in New Brunswick.

Over the last few years, we have been working with the Chipman Housing Authority to address the short supply of affordable housing for our newly settled families in Chipman, New Brunswick. The work began with a subdivision of 12 mini-homes and expanded with 18 new town homes in 2022. Plans are underway to complete another subdivision in 2024. In 2022, we supported the settlement of 140 newcomers and 81 of their family members.

The new arrivals and housing developments have made a big impact in the small community, revitalizing the village after years of struggling with population decline.

REPORTING STANDARD

✓ GRI 2-29

GOVERNANCE

Scholarships Granted

Charitable Donations

Strategic SDGs

COMMUNITY ENGAGEMENT

A working forest works for communities.

OUR FOCUS

A great team working together to find a better way, every day is a core value that drives our community support and engagement, and guides our efforts to make our communities great places to live and work. Our commitment is to create change that positively benefits everyone. It's a tradition we have carried on for generations.

We support communities through:

- Funding for educational programs
- Health and wellness
- Offering recreational use of JDI's freehold land
- Sponsorships and donations

MAINTAIN OUR COMMUNITY DONATIONS PROGRAM

JDI Helps – Rooted in community! – IRVING J.D. IRVING, LIMITED

In 2022, we donated $1.7 million (CAD) to charitable causes, enabling everything from home builds to Christmas dinners hosted by local food banks. We also sponsored events like the 50th International CanAm Sled Dog Race, the annual Paws Walk in Moncton, New Brunswick and the Canadian Hockey League's Memorial Cup. We believe in giving back to the communities where we operate. Our employees contribute many volunteer hours each year through initiatives like Habitat for Humanity in Macon, Georgia and planting trees with Mission Green Toronto.

$1.7 Million (CAD) Charitable Donations in 2022*

*Donations from Forest Supply Chain only.

GROWING THE NEXT GENERATION

We believe education opens the door to a lifetime of opportunity and helps build strong communities and a strong economy. Investing in the talent of the next generation is important to us, which is why we seek to reach thousands of students of all ages through the educational initiatives we support each year.

Our education initiatives include:

Investing in local universities and colleges – We support local universities and colleges through capital fundraising campaigns, donations, providing scholarships and supporting education and skilled trade training programs.

Scholarships – Each year we award scholarships to students pursuing post-secondary education whose parents are valued employees and to students who are employed in our seasonal tree planting program.

PALS (Partners Assisting Local Schools) – Year over year we support Partners Assisting Local Schools and the Boys and Girls Club, and we sponsor a number of initiatives designed to encourage and inspire young people to consider continuing their education and growing their careers within their own community. Hundreds of JDI volunteers are now working with students and schools to make a positive impact in the lives of young people. To date, more than 65,000 hours of JDI employee volunteer time have been dedicated to PALS.

$147,442 (CAD) in scholarships granted in 2022.*

*Scholarships from the Forest Supply Chain only.

Irving Nature Park

Wolastoq Park

Irving Eco-Centre: La Dune de Bouctouche

Irving Arboretum

DISCOVER THE GIFT OF NATURE IN OUR PARKS

Each year, thousands of visitors enjoy free public access to our four nature parks and conservation areas. In addition to the crucial role our parks play in wildlife habitat and ecosystem protection, they also offer community spaces and provide recreational and environmental education opportunities. We maintain four parks free for public use and enjoyment, encouraging locals and visitors alike.

The Irving Nature Park and the Irving Eco Centre at La Dune de Bouctouche offer schools and communities educational resources, including hands-on lessons in our outdoor classrooms. Here, students learn about local ecosystems and the environment. These are provided through free summer day camps and outdoor activities co-ordinated by the parks.

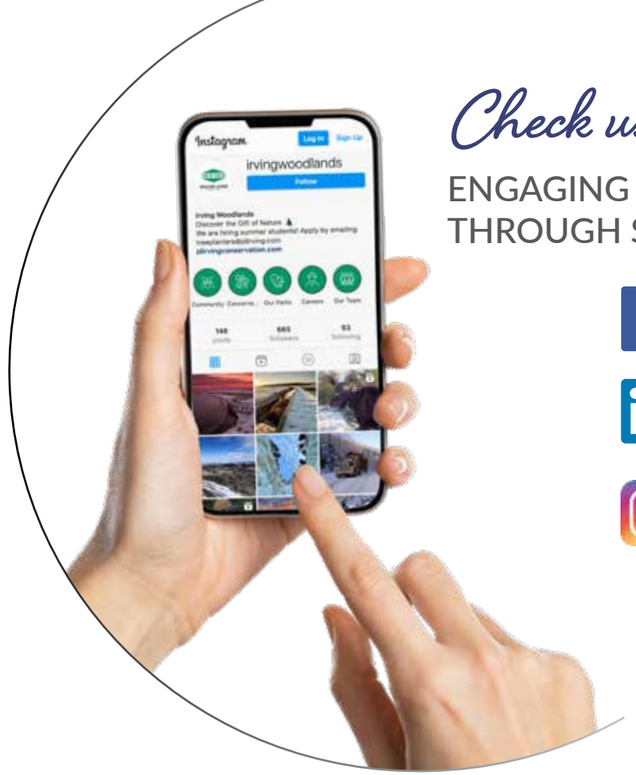
COMMUNITY ENGAGEMENT

We are proud to sponsor events in the communities where we operate each year. This support is shown through sponsorships, charitable donations, in-kind donations and employee volunteer time and fundraising.

As an active member of the community, we also invite communities to our businesses through tours of our operations, stakeholder meetings and by participating in local events. Our goal is to build relationships with stakeholders, community members and employees to achieve mutual understanding.

Social media continues to be an essential tool to engage with a number of key audiences. In 2022, we saw growth across our Irving Woodlands social platforms (Facebook, Instagram and LinkedIn), with total followers reaching more than 35,000. Our social channels allow us greater transparency and enhanced communication and engagement with the community, provide operational information and share our team's commitment to sustainable forest practices and conservation.

J.D. Irving, Limited Conservation Website



Check us out online!

ENGAGING STAKEHOLDERS THROUGH SOCIAL NETWORKING

IRVING WOODLANDS

IRVING WOODLANDS

IRVINGWOODLANDS

35,800+

FOLLOWERS ACROSS PLATFORMS IN 2022

ECONOMIC IMPACT

We are proud to support the long-term viability of communities by offering diverse employment opportunities and competitive wages and benefits, as well as by investing in capital infrastructure, technology, housing and a new immigration pilot project.

Dmytro Surovets, Nova Scotia Woodlands

Juniper Tree Nursery, Juniper, New Brunswick

SUSTAINABLE FOREST MANAGEMENT

Highlight: Success of the Spruce Budworm Early Intervention Strategy

Spruce budworm is the most destructive native forest pest in eastern Canada. The insect feeds on the new growth of fir and spruce trees each spring during an infestation. Uncontrolled spruce budworm outbreaks have the potential to devastate the softwood wood supply by reducing growth and causing widespread mortality of fir and spruce trees across the landscape.

Researchers were driven to find an alternative method to control outbreaks, knowing that the types of large-scale spray programs used in the past were no longer socially or financially feasible. Following the lead of the Canadian Forest Service, the Healthy Forest Partnership was established in 2014–made up of stakeholders from federal and provincial governments, universities, and industry. The partnership implemented an innovative approach called the spruce budworm Early Intervention Strategy (EIS). The EIS proposed monitoring, early detection, and targeted small area treatments aimed at the critical stage when the populations were rising with the idea that this might prevent an outbreak.

The partners have been implementing the EIS with success since 2014. In 2022 the budworm outbreak in the neighbouring province of Quebec resulted in nearly 11 million hectares of defoliation, however in New Brunswick with EIS, there was almost zero defoliation and only 15,150 hectares preventatively treated.

This is an excellent example of how research and collaboration can protect the forest from insect pests and ensure we can all continue to rely on a healthy forest.

SUSTAINABLE FOREST MANAGEMENT

A working forest works for our customers.

REPORTING STANDARD

- ✓ SASB RR-FM-000.A
- ✓ SASB RR-FM-000.B
- ✓ SASB RR-FM-160A.1

GOVERNANCE

- Management Plans
- Indigenous Relations Policy
- Third Party Certifications: SFI, FSC ®
- Percentage of Forested Landbase Harvested
- Total Lands Under Irving Management

STRATEGIC SDGS

Sustainable forest management is all about balance. We strive to offer a high-quality, secure and growing wood supply for our Supply Chain customers, while safeguarding forest health through the protection of biodiversity, water, wildlife and designated conservation areas.

LONG-TERM STRATEGIC AND OPERATIONAL PLANNING

The growth and harvest of the forests we manage is guided by long-term forest management plans that ensure our forestry activities are aligned with established social, economic and environmental objectives. Our plans are prepared to support the dynamic nature of forests and consider changes at the landscape level for up to 80 years into the future. These detailed management plans include a range of considerations, including harvest levels, reforestation, biodiversity, wildlife habitat, water quality and recreation. We revise our plans every five years to allow for the incorporation of new knowledge, changing climate, natural disturbances, and shifting public values–developing a flexible and adaptable long-term plan over time.

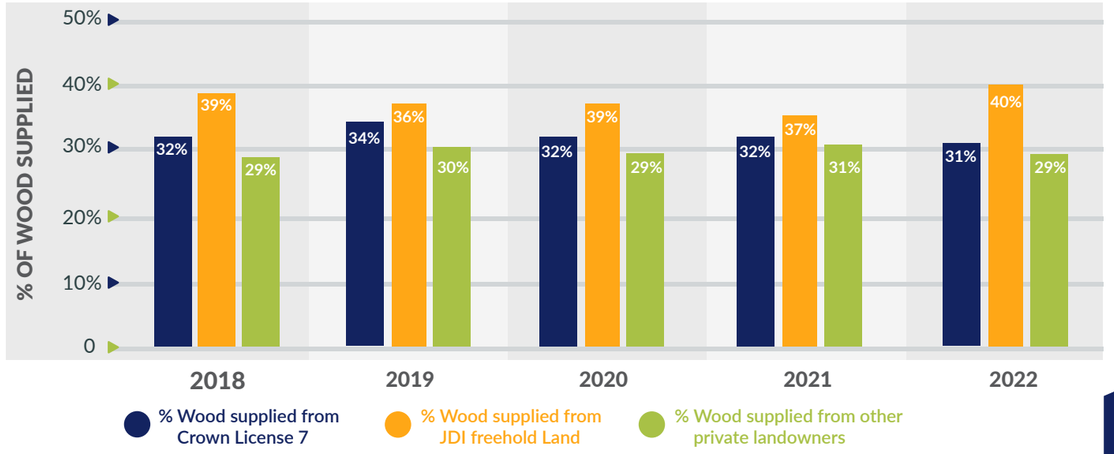
Having an accurate forest inventory gives credibility to and inspires confidence in our 80-year plan. Our inventory is created using the most modern digital methods available, like airborne laser scanning (LiDAR) that captures a digital image of the forest on a 20x20 metre basis and advanced machine learning techniques that can create an accurate and digitally enhanced forest inventory.

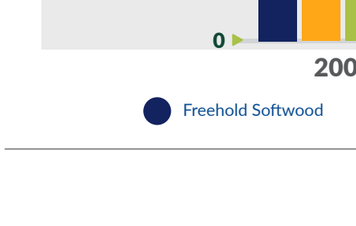
We harvested 1.4% of the forested land base in 2022.

100% of harvested areas are regenerated across the landscape.

Six different species used in planted areas.

WOOD SUPPLY DASHBOARD

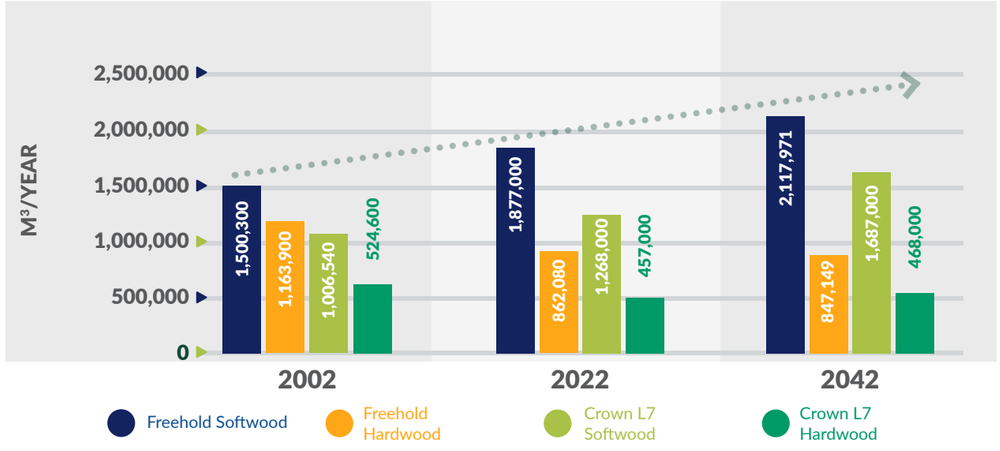




TOTAL LANDS UNDER IRVING MANAGEMENT

HECTARES	ACRES	
796,095	**1,966,355**	NB & NS Freehold
519,208	**1,282,444**	Maine Freehold
1,062,337	**2,623,972**	NB Crown License 7
2,377,640	**5,872,771**	**Total**

A GROWING WOOD SUPPLY



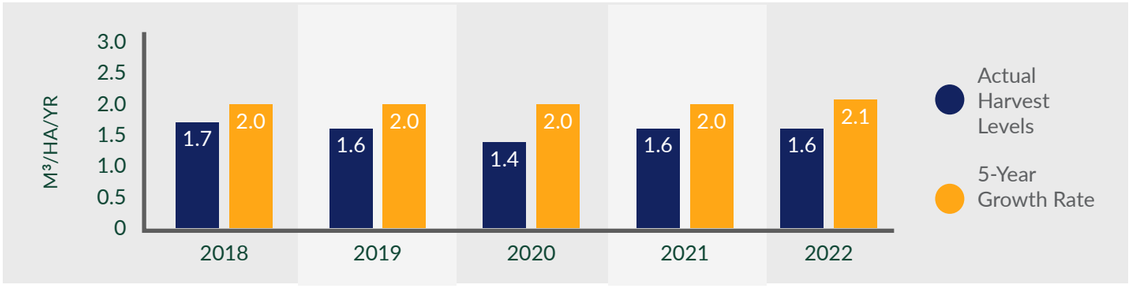
ACADIAN FOREST REGION – A LONG HISTORY AS A WORKING FOREST

Forests in New Brunswick, Maine and Nova Scotia are referred to as the Acadian Forest region. The Acadian Forest is known to be a transition forest, between the hardwood dominated forests to the south and the softwood dominated boreal forests to the north. In this transition zone, the Acadian Forest is mixed at the landscape scale, with a patchwork of both pure softwood and pure hardwood dominated areas, combined with areas of mixed forests. After more than 400 years of European settlement, the Acadian Forest has been heavily influenced by human activity. That means our operations are not found in areas with significant old growth forest or areas of either intact or primary forests. From a natural disturbance perspective, forest fires do occur, but with less frequency than in boreal or western North American forests. The most dominant driver of natural disturbance is the eastern spruce budworm. Over millennia, following a thirty-to-sixty-year cycle, this native insect pest has both destroyed and regenerated large, even-aged patches of pure softwoods like spruce and fir.

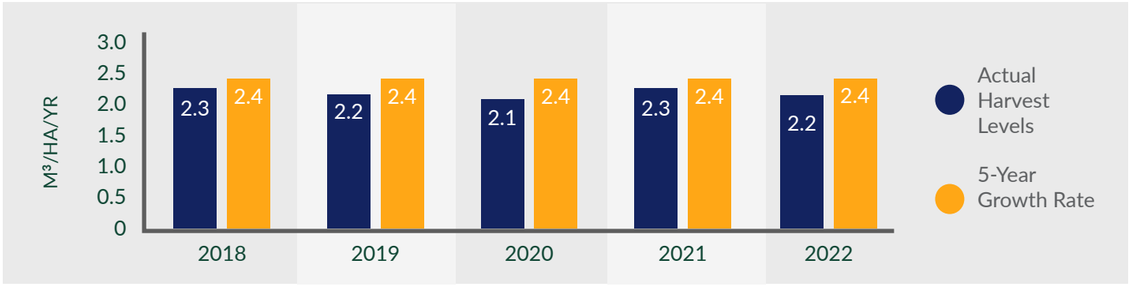
MAINTAIN A 5-YEAR AVERAGE OF FOREST GROWTH AT OR ABOVE HARVEST

FOREST GROWTH AND HARVEST RATES

CROWN LICENSE 7



FREEHOLD

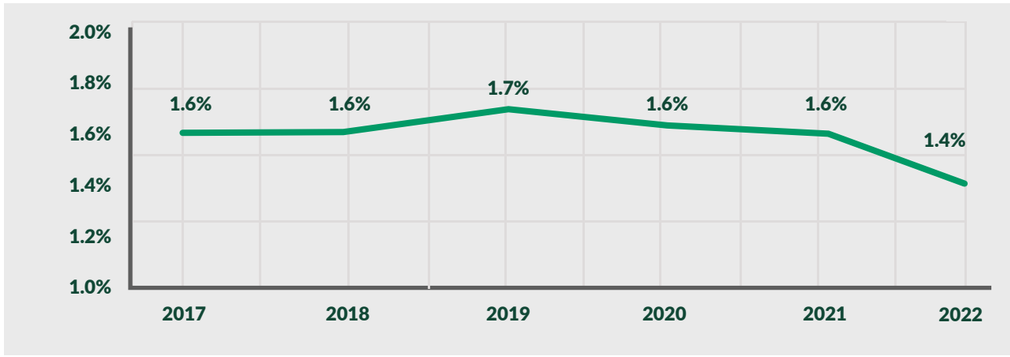


SUSTAINABLE HARVESTING AND INTENSIFICATION

Harvesting sustainably means that we will never run out of trees for our customers along the Supply Chain and that our forests remain healthy over time. We can maintain this commitment by growing more wood than we harvest and by harvesting less than two per cent of our forested area each year.

We use a variety of even-aged and uneven-aged harvesting techniques on our lands based on the current forest inventory and the objectives of our long-term management plans. The choice of how and when to harvest each area is carefully considered by our foresters. Foresters review the species and age of the trees, soils and regeneration plan to decide on the best methods to harvest and regenerate the forest. Factored into each decision are considerations of any site-specific plants and wildlife, and requirements to protect water, recreation and aesthetics.

PERCENTAGE OF FORESTED LAND BASED HARVESTED



Nova Scotia Woodlands

Chelsey Troke, Grand Lake Timber, New Brunswick

DISCLOSURE ON DEFORESTATION

According to the Food and Agriculture Organization of the United Nations (FAO), deforestation is defined as 'the conversion of forest to other land use independently of whether human-induced or not.' This year we measured deforestation on our managed lands to the FAO standard and are reporting **0.01%** of lands deforested annually, where the majority is attributable to building forest access roads for our operations.

WHY CLEARCUT? WHEN CLEARCUTTING IS THE RIGHT CHOICE

Clearcutting is a forest harvesting and regeneration method in which most or all trees within a specified area or patch are harvested at the same time.

Clearcutting can be a contentious practice. A common complaint is the appearance of the landscape following a clearcut harvest. But what is not well understood is that when foresters choose clearcutting as a harvesting method, they are focused on how to quickly regrow the area so that it becomes a new forest again.

Foresters consider factors such as tree species, soil types and natural disturbance patterns when making the decision to use clearcutting as a harvesting method. Clearcutting creates a patch of forest with a similar or even age (age "zero" when harvested). The harvested area will then retain this even-aged characteristic throughout its life cycle. These large and even-aged patches of trees of similar species is a condition that is naturally part of the Acadian Forest landscape. In nature, these patches could have been the result of forest fires, insect outbreaks, or strong winds which cause entire patches of trees to blow down. Some tree species are specifically suited to regenerate in the full sunlight conditions created by these larger disturbances.

For tree species that regenerate better under the shade of older trees, or for species that are not impacted to the same extent by fires, insects or blowdowns, foresters may decide to use selection harvesting methods.

The right choice between clearcutting or selection harvesting methods is carefully determined by trained and knowledgeable foresters who are committed to growing healthy working forests for the future.

OPTIMIZING THE USE OF EACH TREE

We strive to maximize the use of every tree we harvest. Our modern sawmill, pulp and paper and tissue manufacturing facilities are highly integrated and designed to match the mix of tree species and products that come from the Acadian forest optimizing the use and value of each tree.

With the latest technology, we can use every part of the tree and leave little to waste. In the woods, harvesting machines are fed current market information, to optimize the processing of each tree to fill customer orders. These harvesters then cut wood products to millimetre precision. And our sawmill facilities use the latest scanning and imaging technology to maximize the yield of every log.

In the past ten years, we have invested in state-of-the-art sawmill scanning technology to maximize recovery from each log. These 3D laser scanners offer in-depth wood analysis of logs and determine the optimal rotation for cutting the log to generate the highest value and least waste. These scanners are fed data including customer needs and weekly price lists, automating much of the decision-making needed to optimize value. ***Our sawmills have seen 15 per cent more recovery with the implementation of this technology.***

Through advanced technologies like these, we add value and optimize the highest and best use of all parts of the trees we harvest.

1. FAO. 2018. Terms and definitions – FRA 2020. Forest Resources Assessment Working Paper 188. Rome. (also available at https://www.fao.org/3/I8661EN/i8661en.pdf).

SILVICULTURE PROGRAM

Silviculture is the art and science of growing trees. Using treatments like tree planting and thinning, we can establish a forest that is healthy, more productive, better adapted to climate change and that has been demonstrated to provide a wide range of ecological values.

Since 1957, we have planted over a billion trees. Tree planting continues to be a critical tool to support our strategy to grow more wood than we harvest. We plan to increase freehold tree planting from the five year average of ten million seedlings per year prior to 2022, to sixteen million seedlings per year in 2025. In 2022, our freehold tree planting increased to over thirteen million seedlings, on pace to achieve our 2025 goal.

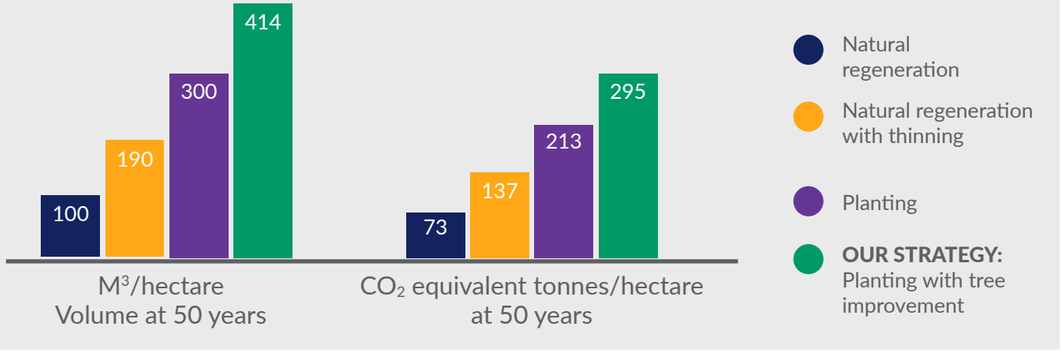
The benefits of an intensive silviculture practice like tree planting are clearly demonstrated by the fact that four times more wood grows on each hectare of planted land when compared to wood growth on naturally regenerated areas. In turn, this focus on sustainable intensification with planted areas supports the growing demand for forest products and allows for more forest conservation. In addition, planted trees improve the quality of wood products, and they remove four times more carbon dioxide from the atmosphere than naturally regenerated forests.

Our foresters build in resiliency to climate change by using seedlings from the best families identified in our tree improvement program, by matching the right tree species to the right site in the forest, and by maintaining those trees in a "free-to-grow" condition over their life cycle. When compared to natural regeneration such as balsam fir, planting locally adapted spruce and pine that have been tested through our long-standing tree improvement program reduces the susceptibility of the forest to the most important forest health threat in our region, the eastern spruce budworm.

Diversity in planted areas is accomplished by planting six different species of spruce and pine with broad genetic diversity from our tree improvement program. We ensure a diversity of naturally regenerated species in planted areas during follow-up silviculture treatments throughout the life cycle. In the future, we expect the area planted to increase, aligned with our strategy to improve the climate resiliency on the portion of the forest that is currently dominated by conifers. This will be done by replanting spruces and pines where we harvest areas dominated by balsam fir today. Balsam fir is expected to perform poorly in a changing climate in this region, while spruces and pines are expected to be more adaptable in warmer and/or drier climates.

DOUBLE THE WOOD SUPPLY ON FREEHOLD LAND BY 2050.

PLANTING TREES: 4X THE VOLUME, 4X THE CARBON



TREE IMPROVEMENT PROGRAM

Growth in our forest products business means an increased demand on our managed lands. There is a limit to the amount of working forest land. This means that to increase growth and meet the demand we must focus on getting the highest performance on each hectare planted. Our tree improvement program helps us achieve this by identifying and growing the best trees.

Our nursery facilities grow millions of top quality seedlings annually. Our expert growers from around the globe have extensive experience in growing superior trees from the best tree families. At Maritime Innovation Ltd., world-class research takes place in our lab to ensure we are identifying tree families with the best genetics. Our scientists use an advanced laboratory tissue culture method that provides an efficient means to produce elite tree varieties selected from our breeding program. Most seedlings produced at our nurseries are grown from the seeds of superior, field-tested families at our seed orchard in Parkindale, New Brunswick.

For 45 years, our tree improvement program has demonstrated significant improvement in growth rates, timber quality and pest resistance. A long-term strategic tree breeding program ensures future climate change adaptability of forests.

Sussex Tree Nursery, Sussex, New Brunswick

ACCOUNTABILITY THROUGH CERTIFICATION

MAINTAIN THIRD PARTY CERTIFICATIONS ON ALL MANAGED LANDS.

Our commitment to accountability in sustainable forest management is supported by third-party certification on the lands we own and manage. We were early adopters of several internationally recognized forest management and chain of custody standards, having now held third-party forest certification for twenty years.

These standards ensure:

- 100 per cent of our operations are annually and independently audited according to ISO 14001 environmental standards and certified under the Sustainable Forestry Initiative® (SFI) certification.
- 100 per cent of Maine woodlands are certified under Forest Stewardship Council® (FSC®C041515) program.
- Third-party audits are performed by New Brunswick's Department of Natural Resources and Energy Development, the Maine Forest Service, KPMG and SCS Global Services.

Since 2003, we have held ourselves accountable to these forest management certification standards, with independent third-party audits to verify our results. No operation is perfect; forest management certification standards ensure that internal systems identifying non-conformance to standards, and that corrective actions are put in place. These systems enable continuous improvement. Independent third-party audits ensure that this continuous improvement system is working.

As standards evolve, our operations must evolve with them. Since 2015, we have had zero external audit non-conformances, demonstrating our commitment to responsible forestry practices. We prioritize meeting all regulatory requirements and go above and beyond certification standards to ensure we have effective implementation of our sustainable forest management strategy.

20 YEARS OF THIRD-PARTY FOREST CERTIFICATION

100% of land certified

SUSTAINABLE FORESTRY INITIATIVE
SFI-00032

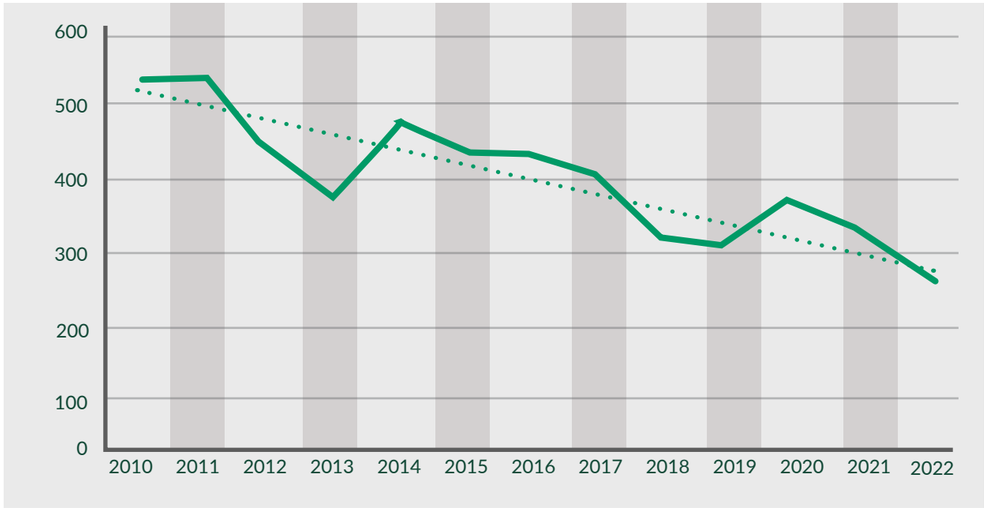
100% of land certified in Maine

FSC
www.fsc.org
FSC® C041515
The mark of responsible forestry

Environmental management systems certified for **100%** of our land management activities

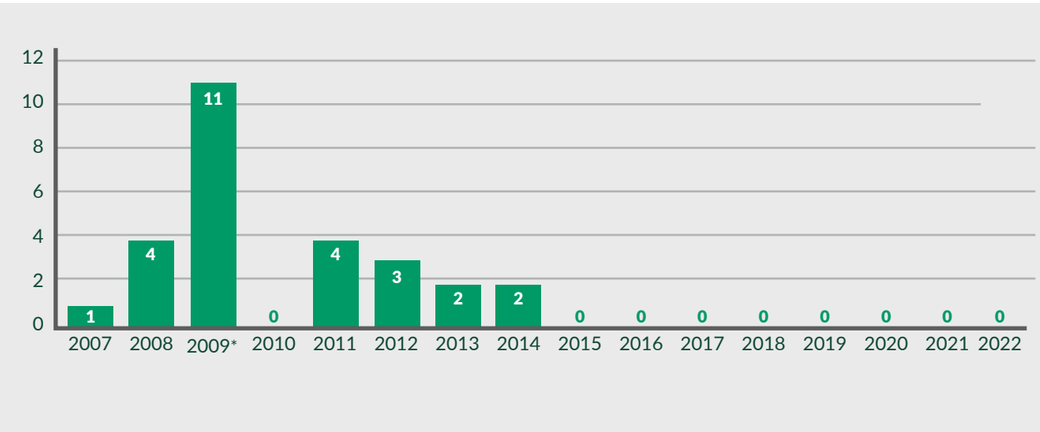
ISO 14001 REGISTERED KPMG

WOODLANDS INTERNAL AUDIT NON-CONFORMANCES



ZERO External Non-Conformances in 2022

EXTERNAL AUDIT NON-CONFORMANCES (SFI® & FSC®)



*2009 marked initial FSC® audit

The Company's Maritime Innovation Limited, Sussex, New Brunswick

Harvester, Central New Brunswick Woodlands

FOREST CONSERVATION & BIODIVERSITY

Highlight: Committing 10,000 HECTARES TO CONSERVATION

At the United Nations Convention on Biological Diversity (COP15) and in partnership with the Government of Canada, J.D. Irving, Limited proudly committed nearly 10,000 hectares of privately held Acadian forest, coastline and dunes in New Brunswick for conservation.

The lands will be recognized in the Government of Canada's Canadian Protected and Conserved Areas Database, as other effective area-based conservation measures (OECM). The recognition is voluntary and confirms the land's existing use, governance and management contribute to the conservation of biological diversity. These lands represent some of the province's most unique and biodiverse areas, including the Saint John Irving Nature Park, Bouctouche Dunes, Ayers Lake and the headwaters of the Miramichi and Restigouche rivers. The commitment also represents **the largest private contribution** to OECMs in Canada at the time of publication.

An OECM is an internationally recognized tool that plays a key role in helping achieve Canada's ambition of protecting 30 per cent of its land and waters by 2030. JDI is proud to contribute to Canada's biodiversity and conservation goals – the commitment demonstrates how well-managed forestry and conservation can co-exist.

DOUBLY MATERIAL TOPIC

REPORTING STANDARD

- ✓ SASB RR-FM160A.2
- ✓ GRI 304-4
- ✓ GRI 304-3

GOVERNANCE

- Forest Species of Concern
- Late Successional Forest Policy
- Policy for Maintaining Diversity in Harvested Areas
- Rare Plant Pre-Screening Policy
- DWA Policy for Freehold Land
- Invasive Species Policy
- Percentage of conservation forest
- Conservation forest area

STRATEGIC SDGS

FOREST CONSERVATION & BIODIVERSITY

A working forest works for diversity

At the landscape level, a diversity of tree species, ages, patch sizes and structures creates a broad diversity of habitats. A diversity of habitats leads to diversity of plants, birds, mammals, reptiles, amphibians, insects and fish. And we know that biodiversity also leads to better resilience in the face of a changing climate. Our goal is to ensure our operations result in productive and biodiverse forests.

Securing forest resources for future generations is not just about guaranteeing a wood supply to meet operational needs. We must apply the same long-term thinking used in wood supply management to conservation values to ensure that we are protecting the biodiversity of the forests we rely on.

Our operations have the potential to impact biodiversity. To mitigate this, we have a strategy to manage these impacts. Our three strategy pillars are:

Manage the working forest for a diversity of tree species, plants and wildlife while protecting water and habitats.

Commit approximately 22 per cent of the forest to the primary purpose of conservation across the landscape.

2,000+

Continue our Conservation Areas Program, currently recognizing and conserving more than 2,000 unique areas.

Through New Brunswick's Crown land silviculture program, more wood can be harvested from intensively managed lands, enabling increases in dedicated conservation and protected areas on other Crown lands without impacting wood supply. In 2022 conservation forest areas accounted for 26 per cent of all Crown land we manage.

CONTINUE OUR CONSERVATION AREAS PROGRAM

The strategy is implemented at the landscape level, encompassing all hectares of the forest and cascading down to the smallest unique site. These three pillars are tied together by our long-term commitment to funding research, helping us understand landscape-level impacts of forest management. We apply research outcomes to adapt our forest management strategy and operational plans to maintain our commitment to conservation and biodiversity.

OUR APPROACH TO MANAGING THE FOREST FOR CONSERVATION & BIODIVERSITY

PILLAR	STRATEGY	TIMEFRAME	APPROACH
Working Forest	• Ensure a high diversity of tree species, ages and structure. • Conserve all water and wetlands and site-specific habitats for rare plants and wildlife.	Dynamic, 80-year planning period with daily execution and annual monitoring following forest certification.	• Long-term management planning. • Annual training on regulations and site-specific habitat identification. • Rare Plant Pre-Screening Policy • Internal Forest Species of Concern Guidelines to identify biodiversity concerns and ensure best practices. • Policy for Maintaining Diversity in Harvested Areas • Variety of harvesting & reforestation methods to support diversity (mix of reforestation by planting native species or natural regeneration).
Conservation Forest	• Ensure a high diversity of tree species, ages and structure. • Commit a significant portion of the forest to primary value of conservation (e.g. riparian buffers, deer wintering areas and old forest).	Dynamic, 80-year planning period. Conservation areas may move over time to maintain their conservation value at the landscape scale	• Maintain at least 10 per cent of forest as 'old.' • Link our conservation lands with provincial Protected Natural Areas to ensure connectivity for plants and wildlife. • Deer Wintering Area Policy for Freehold Land • Harvesting only with intention to improve conservation outcomes. • Late Successional Forest Policy
Conservation Areas Program	• Protect a range of the most unique locations on the landscape (from hundreds of hectares to a few square metres). • Protect special habitats and ensure high-quality public recreation experiences in our parks.	Most often permanent protection.	• Continually adding unique sites when identified. • Provide free public access to dedicated nature parks. • Forest Species of Concern

OUR COMMITMENT TO RESEARCH

Since 1990, we have invested more than $30 million in forest-based, peer reviewed research to learn more about our region's fish, wildlife and plants, and the impacts of forest management. This research ensures we are using the best science to guide our conservation strategy across the forest and doing our utmost to avoid, minimize or mitigate impacts. We are a founding partner of many wildlife and forestry research projects and have collaborated with dozens of researchers and more than 100 graduate students.

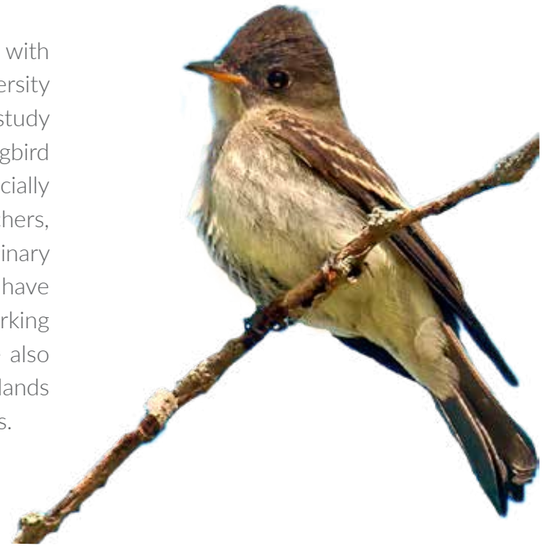
Our Forest Research Advisory Committee (FRAC) was established in 1998 to bring forest managers and researchers together. FRAC's goals are to identify, advocate for and conduct research to address knowledge gaps. Our research partners' work is often peer-reviewed and published. We are currently focused on landscape-level impacts on water, birds, beetles, bryophytes, moose, deer and tree diversity.

Through our decades of research experience, we have been able to show a clear role for both forest management and conservation efforts to help maintain biodiversity on our managed lands.

Canada
New Brunswick Department of Energy and Resource Development
Québec
UNB University of New Brunswick
Université Laval
The University of Maine
McMaster University
Carleton University
University of Maine Fort Kent / Université du Maine
Université de Montréal
Maine Department of Inland Fisheries and Wildlife
CFRU Cooperative Forestry Research Unit
Canadian Wildlife Service

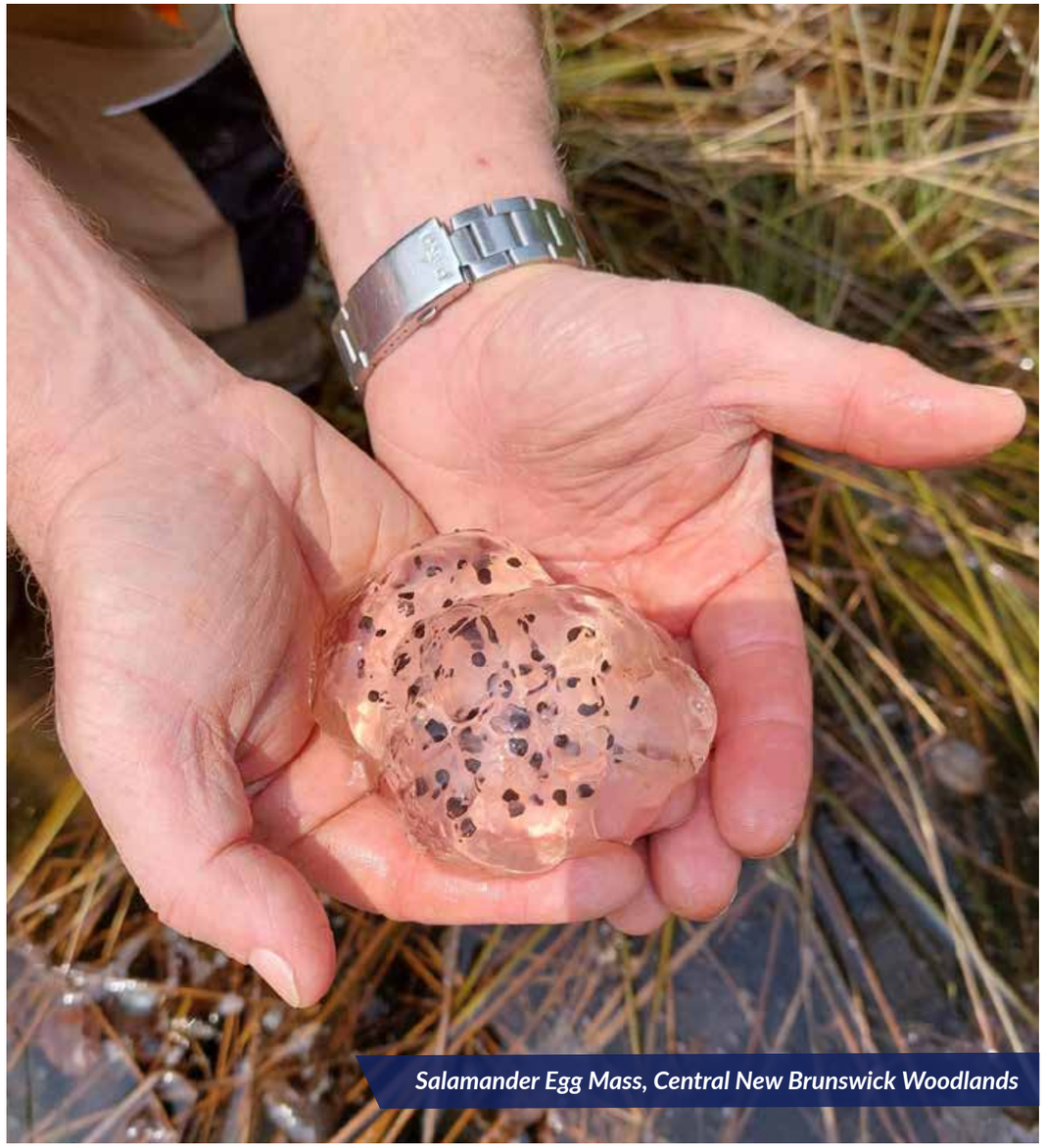
RESEARCH HIGHLIGHTS

Songbird Habitat – Since 2016, we have partnered with researchers at Natural Resources Canada, Carleton University and the Canadian Wildlife Service to conduct an ongoing study to understand the presence and habitat preferences of songbird species in the forests in our region. The research especially focuses on the Canada Warbler and Olive-Sided Flycatchers, which are listed as a federal Species of Concern. Preliminary conclusions from this research show that the two species have flexibility in their habitat selection and that managed/working forests support abundant habitat for these songbirds. We also see the largest diversity of songbirds on our freehold forest lands compared to other, less intensively, managed adjacent lands.



Understanding Climate: Moose and Winter Tick Interactions – To better understand impacts of winter ticks, climate change and predation on moose populations, we are a major sponsor of an ongoing research project in partnership with Université de Laval, Université de Montréal, the University of New Brunswick and the provinces of New Brunswick and Quebec. To date, 286 calves have been equipped with GPS collars in 5 regions to assess their movement and survival, as well as the health of moose populations. Preliminary findings suggest ticks are increasing the variability in calf survival and moose abundance.

Whitetail Deer Habitat in the Working Forest – We have partnered with six research and government groups in an ongoing study of the impacts of intensive forestry on the population of whitetail deer. This four-year project focuses on understanding habitat selection by deer related to snow depth/winter severity versus food availability, forest cover and more. By using data from collared animals we can predict whitetail deer population growth and how whitetail deer use the forest, informing appropriate areas to conserve for deer wintering.

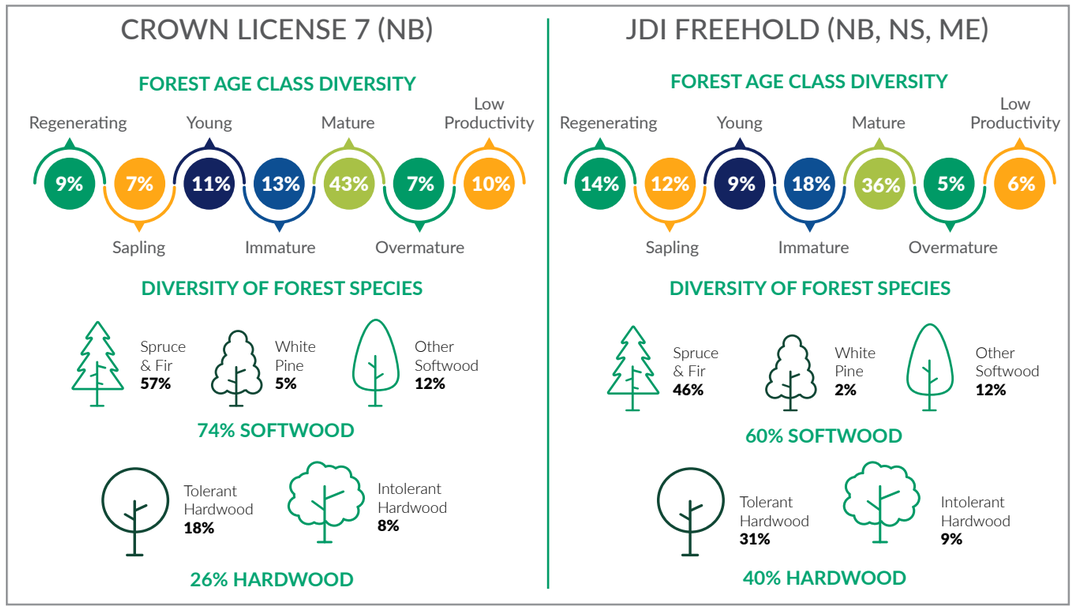


Salamander Egg Mass, Central New Brunswick Woodlands

Protecting Freshwater – To test the effectiveness of best practices around watercourse protection in the working forest, researchers selected 12 streams in Black Brook, New Brunswick that reflected a gradient in forest management intensity such as area harvested, road density and forest composition. Results demonstrated that more intensively managed forests with higher road density have more impact on sedimentation in streams and highlighted the importance of proper road maintenance and improved best practices. This has informed work to identify and prioritize high impact road and watercourse crossing maintenance projects.

Tree Species Diversity – Preliminary data from a recent study on the diversity of tree species in New Brunswick has provided an important benchmark for tree diversity in our region. Trees were counted by species on over 1600 sample plots across the range of JDI owned or managed lands. Across 21 different forest types and age classes, the study found 31 tree species present on our lands, with a high diversity of tree species across forest types. And the **data shows that our planted stands are as diverse as natural spruce/fir forests**. This study provides a baseline of species diversity when considering future forest composition changes that may occur from a changing climate or changes in forestry practices. This demonstrates the role of managed forests in helping to maintain broad tree species diversity.

Northern New Brunswick Woodlands



It is estimated there are 7.17 billion trees on JDI managed land in New Brunswick

CONSERVATION AREAS PROGRAM

Our Conservation Areas Program and parks feature some of the most rare and unique areas on our managed lands. The program currently encompasses 2,001 identified, recorded and conserved site-specific habitats per our internal Forest Species of Concern Guidelines. Our four nature parks play a critical role in wildlife habitat and ecosystem protection.

Sites are identified based on one or more of the following criteria:

- Lakes & Wetlands
- Aesthetics
- Reptiles & Invertebrates
- High Conservation Forest
- Plants
- Birds & Mammals
- Geological & Fossil
- Historic
- Fish
- Unique Forest Stands

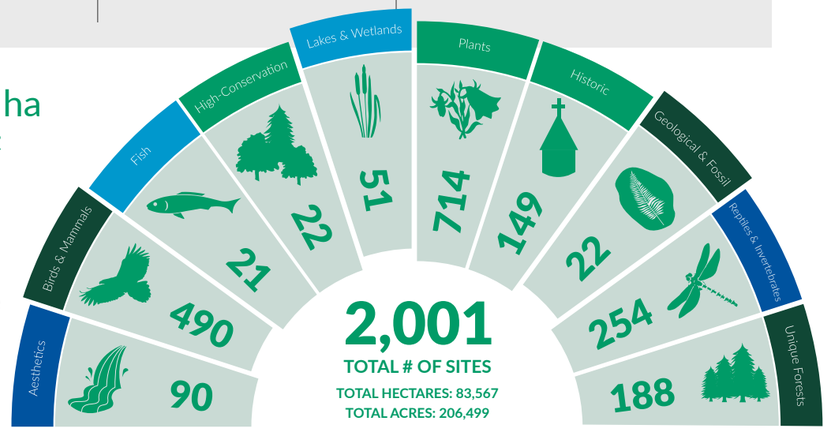
WE CONSERVE 22% OF THE LANDS WE OWN OR MANAGE

Total Conservation Area on Lands Under Irving Management: **529,252 HAs / 1,307,782 ACs**

CONSERVED LANDS	FREEHOLD	CROWN LICENSE 7 (NB)
• Unique Areas • Water And Wetland Buffers • Deer Wintering Areas • Old Forest Habitats • Protected Natural Areas	19% 247,913 HAs[1] 612,593 ACs	26% 281,339 HAs 695,189 ACs

68,804 ha
Old Forest Sites

JDI has set an objective to designate and maintain old forest within the working forest landscape. To date, more than 68,804 hectares (170,018 acres) have been designated toward meeting this objective.



1] Includes 4500 hectares of non-spatially identified conservation forest on recently acquired lands in Maine.

AIR & WATER QUALITY MANAGEMENT

Highlight: Construction Begins on Irving Pulp & Paper Environmental Treatment Facility

In August of 2022, Irving Pulp & Paper broke ground on a new Environmental Treatment Facility and water use reduction project in Saint John, New Brunswick. These upgrades, anticipated to be complete in 2024, will place our mill among the global leaders in pulp and paper process water use and effluent treatment performance.

The Saint John mill is at the centre of our forest products value chain and we know building this facility will ensure our long-term environmental performance. Irving Pulp & Paper is investing over $108 million in the project with the objective of reducing the pulp mill water usage and reducing its overall impact on the environment. This marks another significant investment to make sure the mill continues to be a world-class facility.

The project, through modernized technology, will reduce water consumption by about 50% and will also provide increased recycling and reuse of filtered water at the mill.

DOUBLY MATERIAL TOPIC

REPORTING STANDARD

- ✓ GRI 305-7
- ✓ GRI 303-1
- ✓ GRI 303-2
- ✓ GRI 303-3
- ✓ GRI 303-4
- ✓ GRI 303-5
- ✓ SASB RR-PP120A.1
- ✓ SASB RR-PP-140A.1

GOVERNANCE

- Best Practices for Establishing & Harvesting Buffers
- Watercourse & Wetland Alternation Certification (NBDELG)
- Soft Ground BMP
- JDI Environmental Policy

STRATEGIC SDGS

AIR & WATER QUALITY MANAGEMENT

Manufacturing operations, harvesting activities and forest road building all have impact on air and water quality. As shared resources, we understand we have a responsibility to meet and exceed regulations to protect our air and water.

Through our enterprise-wide environmental policy, we are committed to ensuring that our operations avoid damage to ecosystems, impact on fish, wildlife or local communities. Using the best science and technology, we aim to continuously reduce the impact of our air and water emissions.

Our operations meet and/or exceed a wide range of industry and site-specific regulations, ensuring we operate at the highest standards. Regulations are applied at federal, state and provincial levels, requiring annual reporting and limits to be in place on our air and water emissions. Additionally, site-specific approvals and permits are issued to address any additional requirements. We prioritize ongoing compliance, continually re-evaluating our operations to ensure risks are being assessed and managed.

In addition to maintaining regulatory compliance, our divisions are guided by robust environmental management systems to enhance our environmental performance and achieve positive environmental outcomes.

DIVISION	ENVIRONMENTAL MANAGEMENT SYSTEM
Woodlands	ISO 14001:2015 registered, SFI® and FSC® certifications
Sawmills	Internally developed environmental management system
Pulp and Paper Irving Pulp & Paper Irving Paper Ltd. Lake Utopia Paper	ISO 14001:2015 registered, with third party auditing against the standard
Irving Consumer Products	Internally developed environmental management system, with guidance from U.S. Environmental Protection Agency

25% WATER REDUCTION FROM IRVING TISSUE OPERATIONS BY 2030

AIR QUALITY MANAGEMENT

Air quality management means the monitoring, testing and recording of a variety of air quality markers, including:

- Total Particulate Matter (TPM) emissions
- Sulphur Oxides (SOx)
- Nitrogen Oxides (NOx)
- Volatile Organic Compounds (VOCs)

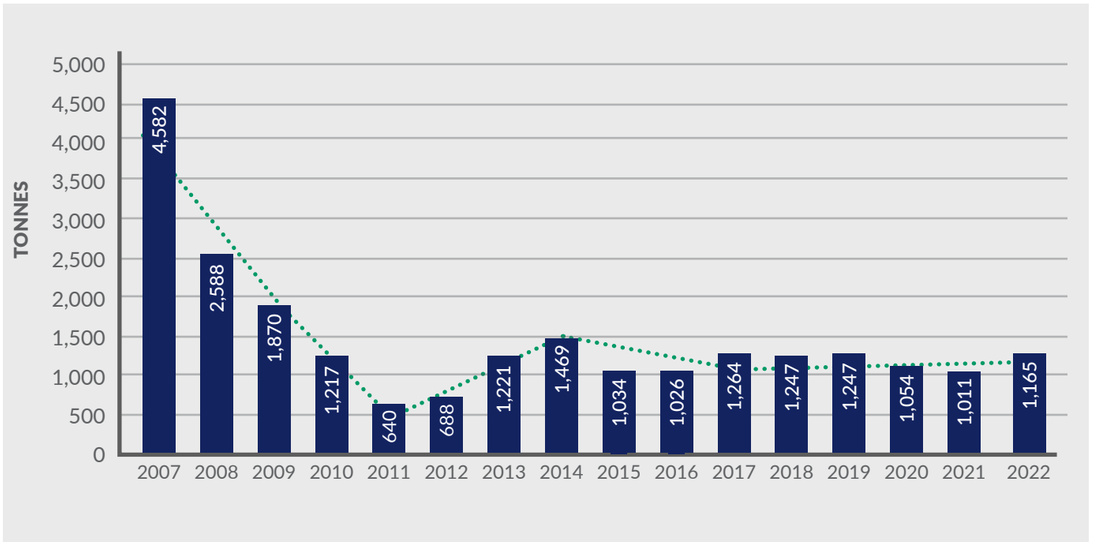
The multi-sector air pollutant regulations in Canada administer restrictions on NOx emission rates. We are in full compliance with this regulation.

50% REDUCTION IN WATER CONSUMPTION AT IRVING PULP & PAPER BY 2028

Our pulp and paper division is the most significant source of air emissions in our operations. The chemical pulping sites in this division are most vulnerable to odour complaints, primarily caused by sulfur dioxide (SO_2) emissions. Over the years, capital investments at the Irving Pulp & Paper facility have virtually eliminated the potential for odour to be detected off-site during normal operation. We are proud of this achievement at Irving Pulp & Paper and are committed to minimizing odour at all sites.

Odour complaints must be logged and shared with regulators, whether they have been substantiated or not. We investigate all odour complaints or inquiries to identify whether we may have opportunities to improve.

PULP & PAPER DIVISION AIR EMISSIONS - SOx (TONNES)



WATER QUALITY MANAGEMENT

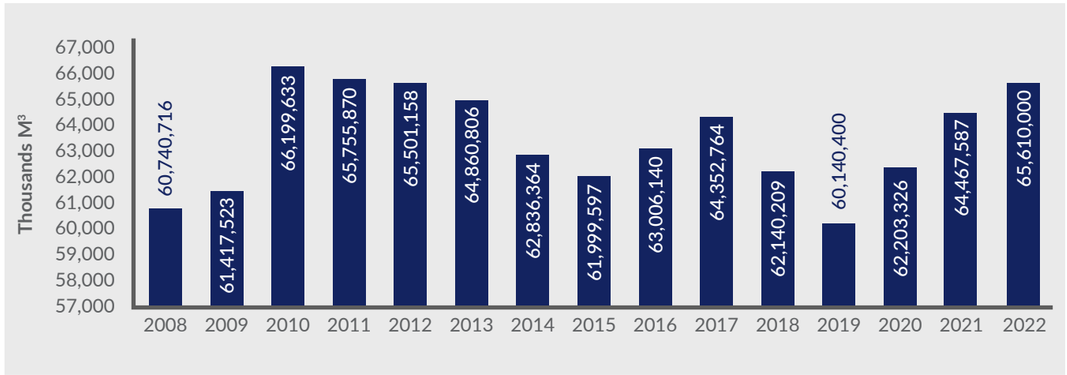
The pulp and paper division and Irving Consumer Products operations use over 65 million m^3 per year of surface water sourced from local lakes and rivers. Process water from these operations is treated and released into the environment under strict environmental controls and regulations.

We also work to protect watercourses as part of our sawmills and woodlands operations. Potential impacts from these operations include: runoff and siltation in rivers from wood and lumber yards and forest roads crossing rivers and streams. Our operations are not located in regions of high water stress. Nevertheless, to prepare for a changing climate, reducing water consumption is very important to long-term sustainability. In 2022, construction began on a new environmental treatment facility at Irving Pulp & Paper, the company's largest facility with the highest water use. The new treatment system will improve effluent quality through increased recycling and reuse of filtered water at the mill. This will place Irving Pulp & Paper among Canadian leaders in the manufacture of pulp by reducing freshwater consumption by 50 per cent once complete.

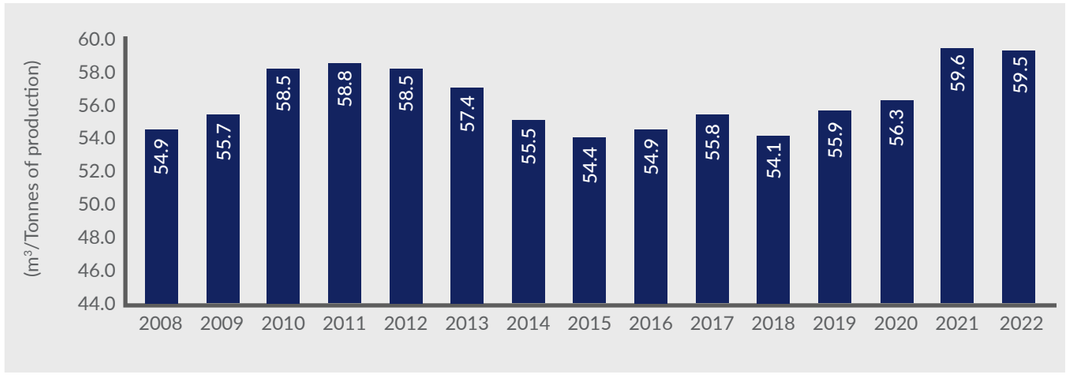
ZERO WATER QUALITY NON-CONFORMANCES AT ALL INDUSTRIAL SITES

Grand Lake Timber, Chipman, New Brunswick

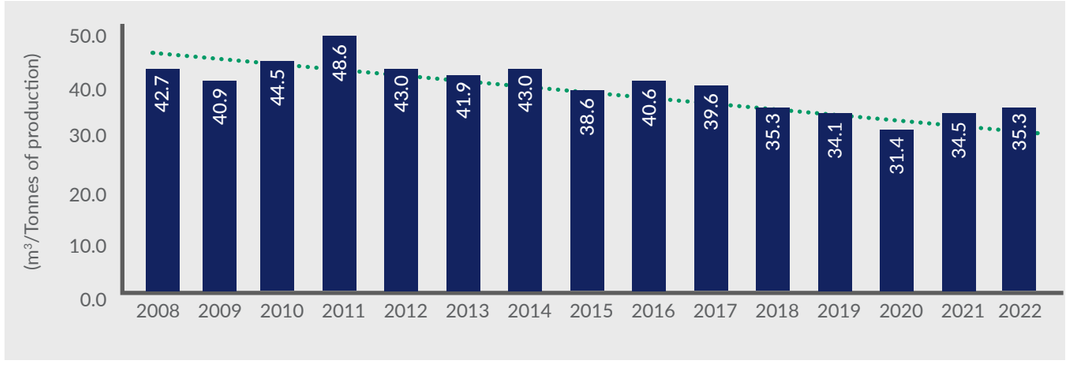
PULP & PAPER DIVISION AND TISSUE WATER USAGE (M^3)



PULP & PAPER DIVISION - WATER USE EFFICIENCY (m^3/Tonnes of production)



TISSUE – WATER USE EFFICIENCY (m^3/Tonnes of production)



PULP AND PAPER – WATER QUALITY

Modernizations of the Canadian Pulp and Paper Effluent Regulations (PPER) have been proposed, leading to stricter water quality discharge limits in Canada. The investment in the new, state-of-the-art environmental treatment facility will allow Irving Pulp & Paper to meet these targets. The facility will enable a 75 to 80 per cent reduction in regulated emissions associated with water treatment, Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS). Construction is anticipated to be complete in 2024.

In addition to having emission limits associated with wastewater, the pulp and paper division is fully engaged in environmental effect monitoring. This program requires participants to identify causes and solutions for affected environments, such as evaluating the potential impact of wastewater on local fish and fish habitat.

We are pleased to report that in 2022, only one non-conformance on our aquatic environment related programs was found.

SURFACE WATER MANAGEMENT

Sawmills

The log and lumber yards surrounding JDI's sawmill sites cover approximately 100 hectares (244 acres) of land and are home to various watercourses and wetlands. To protect these waters, we manage the levels of TSS through rigorous environmental standards. By settling, filtering or separating sediment in storm water, we can ensure all pollution is removed before releasing it back into the environment.

Woodlands

Our vast forests are the source of much of our freshwater, collecting rainfall and snowmelt. This water moves along the surface and underground to small streams leading to large rivers across the landscape. Water is also stored under the surface as groundwater and in ponds, lakes and wetlands. Because of this, our woodlands operations interact with water every day and have a responsibility to look after and care for the land.

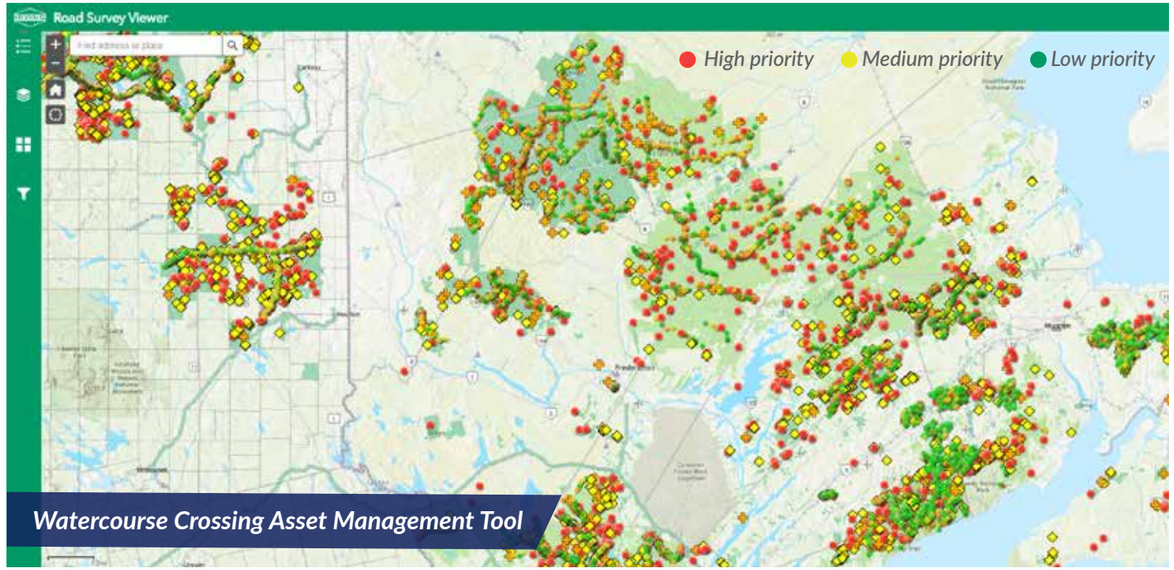
One of the tools we use to protect water are riparian buffers. These are forest areas adjacent to streams, rivers, ponds, lakes or wetlands that are managed for the purpose of conservation and water quality protection. By intercepting sediment and other pollutants before they enter the water, a buffer mitigates the impacts of our adjacent operations. Provincial and state regulations require that most streams and water bodies in the forest have a riparian buffer. Across the landscape, these riparian buffers account for more than 10 per cent of the lands we own or manage.

We focus on enhancing our water-related performance by following best practices and all watercourse and wetland alteration regulations. We report on performance through our forest certification and are proactively protecting our waters for generations to come.

From research, we know that the biggest impact from forest operations on water quality is the building and maintenance of forest roads and water crossings. There are more than 30,000 kilometres of forest roads on the lands we own and manage. By implementing a new asset management tool enabled by mobile technology, we have been able to identify and inventory where forest roads cross streams and prioritize the action needed to keep the water cold and clean.

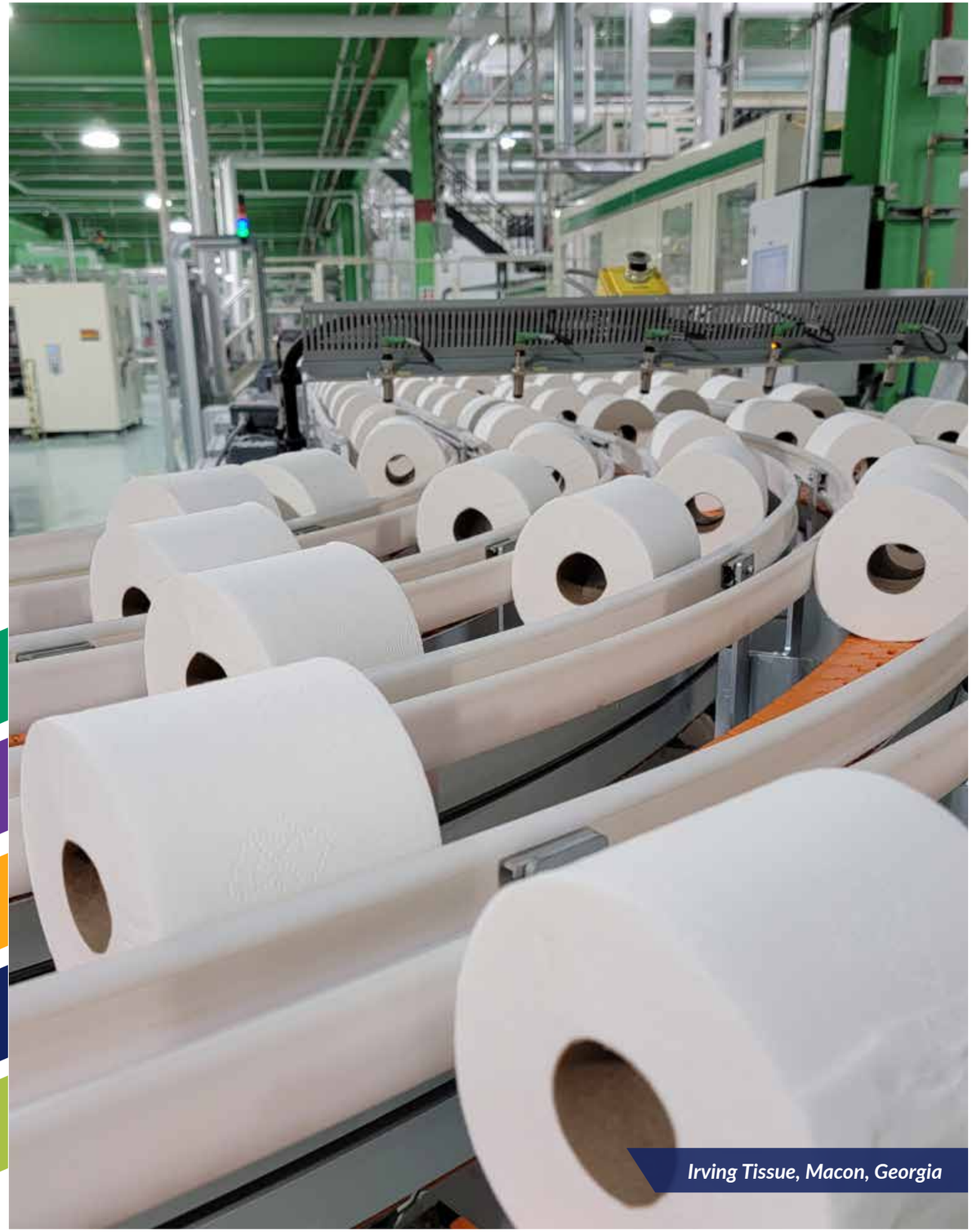
100% OF ALL NEW WATER CROSSINGS COMPLIANT

Todd Payne, Irving Pulp & Paper, Saint John, New Brunswick



Watercourse Crossing Asset Management Tool

In 2022, we started implementation of a woodlands road and watercourse crossing asset management database. To date, 2,300km of critical infrastructure (roads, bridges and culverts) have been mapped and analyzed for quality and maintenance. This tool will help us prioritize road maintenance projects to address the highest priority and highest impact projects.



Irving Tissue, Macon, Georgia

CLIMATE CHANGE ACTION & ADAPTATION

Highlight: Irving Consumer Products Leading in Sustainability

Royale® tissue products are proud to be verified carbon neutral by The Carbon Trust, a global climate change consultancy. In 2022, following PAS 2060:2014 with reasonable assurance from Carbon Trust, we completed the accounting of our life-cycle carbon footprint. This footprint measures total greenhouse gas emissions generated by a product from "cradle to grave," that is, from extraction of raw materials to end of life.

The Royale® brand is part of the JDI Forest Supply Chain, benefitting from our responsibly managed forests and the millions of trees we plant annually. Each year, forests we manage remove more carbon than is emitted in the life cycle of Royale® tissue products. The verification that Royale® tissue products are carbon neutral is a big step in a larger commitment to caring about the environment. To learn more please visit www.royale.ca/carbon-neutral.

CLIMATE CHANGE ACTION & ADAPTATION

A working forest works for resiliency.

REPORTING STANDARD

- ✓ SASB RR-PP-110A.1
- ✓ SASB RR-PP-110A.2
- ✓ GRI 305-1
- ✓ GRI 305-1
- ✓ GRI 305-2
- ✓ GRI 305-2
- ✓ GRI 305-4
- ✓ TCFD - Metrics and Targets
- ✓ PAS2060:2014

GOVERNANCE

Scope 1, 2, & 3 Emissions & Removals

ESG Steering Committee

STRATEGIC SDGS

Climate change is the most pressing environmental issue we face. Understanding the potential impacts in our communities and on our operations is of critical importance. With decades of experience and monitoring, forest owners recognize there are shorter winters, changes in precipitation, new forest pests and shifts in species composition. The trees planted today will be harvested in a much different climate, just as the climate differs today from when our predecessors were planting 60 years ago.

A changing climate can present risks to our Supply Chain which will impact costs, future wood supply and operations, and cause damage to infrastructure. However, change in the climate can also present opportunities to improve forest growth and a heightened demand for renewable forest products and energy.

Steering Committee members, through ongoing consultation with our subject matter experts, identify, assess and manage physical and transitional risks and opportunities in the Supply Chain. These are identified internally through first-hand experience and engagement with external researchers in various disciplines, such as: forest management, hydrology, genetics, silviculture, pest and wildfire management and various engineering disciplines. Guided by internal assessments and the best available science and engineering advice, the members of the executive leadership teams across our Forest Supply Chain direct the investment of capital and human resources into tools and technologies to mitigate the impacts of climate change and react to opportunities.

We are currently in the process of developing both divisional and enterprise-wide risk assessment frameworks to better identify and assess all risks that could impact the company, including those related to climate change. The risk assessment framework will evaluate risks based on the likelihood of occurrence and the scale of financial impact, among other factors.

Resiliency toward climate change is built into our approach to sustainable forest management. The foundation of our long-term forest management is an adaptable 80-year management plan, which is revised every five years. This planning process has built-in flexibility to account for gradual changes in tree composition or growth, or sudden event-driven changes like wildfires.

45 years of tree improvement to understand which trees are genetically best suited to different climates.

Investment in training and technology to ensure the best trees grow on the right sites.

Maintain tree growth with intensive silviculture practices to keep the best trees free from competition.

New Fire Truck, Southern New Brunswick Woodlands

To defend our forests from wildfires and pests, we maintain our own aircraft, airstrips and wildland fire-fighting equipment. Continual monitoring identifies pests and catastrophic weather-related events, allowing us to quickly mitigate impacts to the forest.

PHYSICAL RISKS WITH CLIMATE CHANGE IN THE FOREST SUPPLY CHAIN

In the forest products industry, the most significant physical risk from climate change is a changing wood supply. These changes could occur gradually over time with species shifts or suddenly, due to events such as wildfire, pest outbreaks or windthrow.

The Woodlands team continues to engage with expert researchers to understand the physical risk associated with a changing climate. A recent analysis on forests in New Brunswick provides insight into the gradual species shifts that could impact the softwood wood supply under various scenarios. The report indicates "RCP 2.6 and RCP 4.5 were not expected to result in significant impacts to timber supplies over time." In the most probable scenario, RCP 4.5, any softwood timber supply decline can be mitigated by site-specific decisions around planted species.

SCENARIO	TEMPERATURE INCREASE	COMMENT
RCP 2.6	<2 ºC	Unlikely – best case scenario
RCP 4.5	2 – 3 ºC	Most probable scenario
RCP 8.5	4 – 5 ºC	Unlikely – worst case scenario

[1]Van Lantz, McMongale, Henniger, Sharma, Withey, Ochuodho. December 2021. DRAFT MANUSCRIPT - Forest Succession, management and the economy under a changing climate: coupling economic and forest management models to assess impacts and adaption options.

Representative Concentration Pathways (RCPs) are a greenhouse gas concentration trajectory developed by climate modellers to span a larger range of future global warming scenarios.

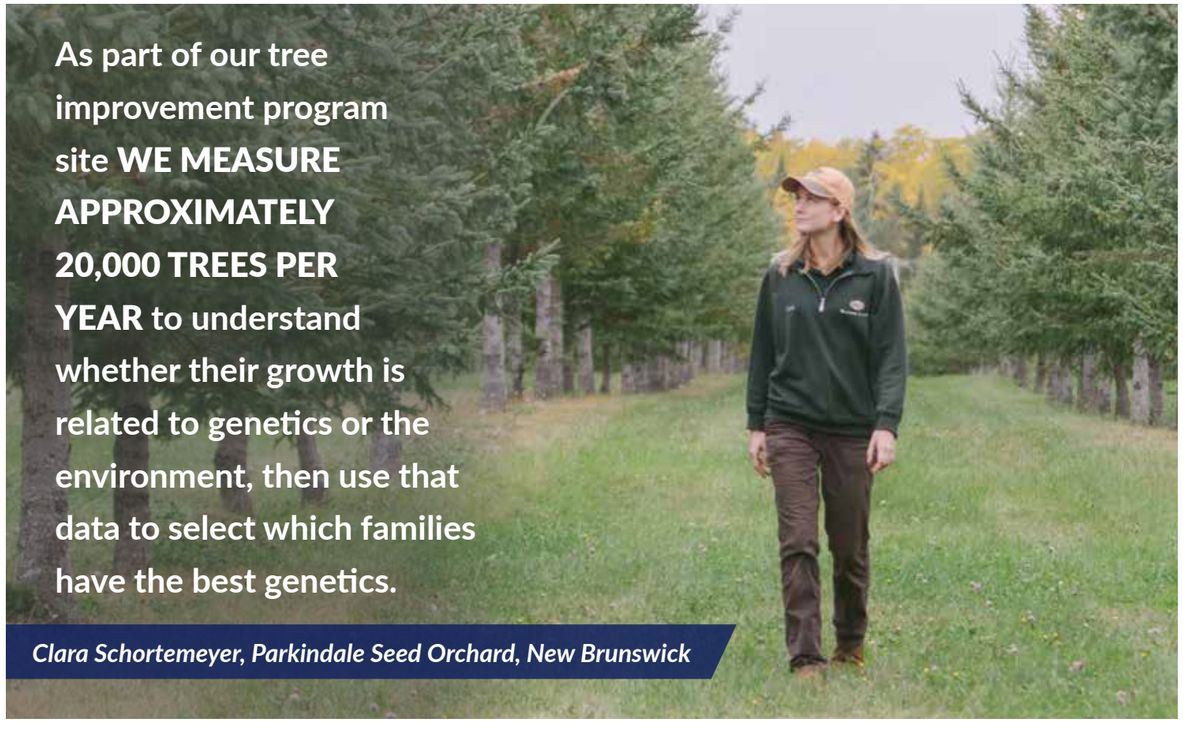
Northern New Brunswick Woodlands

Northern New Brunswick Woodlands

Over the past few decades, we have observed climate-related species shifts. The species shift is evident in Balsam fir, the most abundant tree species in the Acadian Forest. Balsam fir has been in decline in southern areas of New Brunswick for decades. In addition, this species is subject to a range of insect and disease pests. Today's adaptive forestry practices will rely less on natural Balsam fir to regenerate conifers in favour of more resilient species, by planting native spruces and pines. Planting spruces and pines will improve the resiliency of the forest to climate change and improve the resiliency of conifer dominated areas to insects and disease.

The referenced report also modeled the expected impacts of the RCP 8.5 climate scenario on wood supply in New Brunswick. One of the modeled alternatives in the report was the planting of climate resilient seedlings. Our investments in tree improvement have led to a comprehensive understanding of the climate resilience of planted trees from our seed orchard. Long-term data from tree improvement test sites across multiple climatic zones shows that a focus on identifying the best tree families for tree growth also produces tree families that are most resilient to climate change. Therefore, tree seedlings from our seed orchards should mitigate concerns associated with RCP 8.5, as described in the referenced report.

In this scenario, declines in softwood supply are not expected until 2070. The expected decline between 2070 and 2095 is five per cent. We will continue to study the effectiveness of tree improvement and silviculture practices in a changing climate and adapt our species and family selection approaches in response.



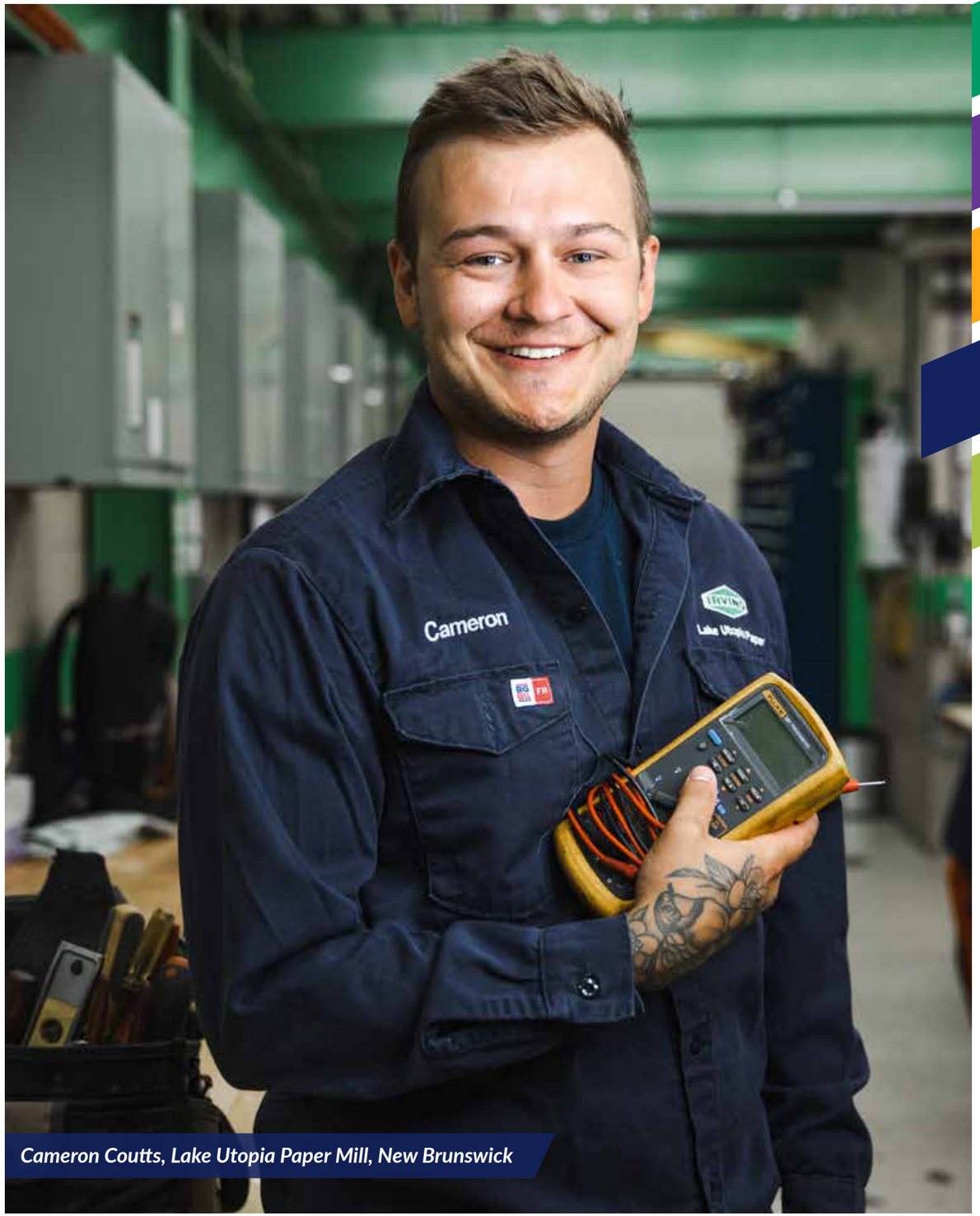
In addition to planting seedlings from genetically superior tree families, selecting the right species for the right site is key. We can modify planting techniques by deploying deeper rooted species on sites that are moisture-limited and subject to droughts. Through our research, we know that increasing the planting of Norway spruce, eastern white pine and Jack pine, while reducing the planting of black spruce, will improve the forest's ability to adapt to drier climates.

Foresters are also studying the positive effects of increased CO_2 in the atmosphere, which is likely to increase tree growth in future periods. We will continue to monitor and engage with local researchers to build an understanding of climate-related impacts to our forests and potential future adaptation strategies.

Climate change also presents risks associated with changing precipitation. This has potential to impact infrastructure at manufacturing sites, forest access roads, and industrial processes that are water dependent, like papermaking. This could mean too much precipitation causing flooding or too little, increasing risk of wildfires and impacting papermaking operations that require significant surface water.

Shifts in temperature can also impact wood supply, leading to increased strength and frequency of winds, including Atlantic hurricanes. It also impacts shifts in seasons such as shorter and/or warmer winters, potentially impacting logging operations in the region that require careful scheduling. For example, low draining areas are suitable for operation only in frozen conditions, and roads built from clays or silty soils are only accessible during dry summers or frozen conditions.

While these risks will likely present themselves over the medium to long-term, they have the potential to disrupt operations and increase costs.



Physical Risks of Climate Change and Mitigation Strategies in the Forest Supply Chain

PHYSICAL RISKS	RISK DESCRIPTION	STRATEGIES TO MITIGATE RISKS
RISK Changes in precipitation and sea levels **IMPACT** Production disruption Increased capital cost **TIMEFRAME** Medium to long-term	• Increase in flooding along rivers impacts sawmills and pulp and tissue mills that were traditionally located near rivers. • Sea level rise could impact pulp mills (Irving Pulp & Paper) near the Bay of Fundy. • Increase in intensity and frequency of rainfall events could impact stream crossings, cross drain culverts and drainage ditches on forest access roads. • Increased droughts will impact the surface water supply for pulp, paper, and tissue manufacturing operations, which are heavily reliant on an available supply of surface water.	• Assessment and upgrading of infrastructure to prevent flooding at manufacturing facilities. Irving Pulp & Paper started the flood mitigation project in 2020 and it was completed in 2022. **(C)** • Using technology to complete an inventory of stream crossings, culverts, and ditches to assess functionality and replacement schedule. **(P)** • Since 2016, new and replacement stream crossings are designed with 1.2 times the 100-year flood prediction. **(C)** • Irving Pulp & Paper began construction on a new environmental treatment facility in 2022 that is estimated to reduce freshwater consumption by 50 per cent. **(P)** • Irving Pulp & Paper conducted a full water use assessment and conservation plan that will reduce water consumption and water use intensity with each planned upgrade. **(C)**
RISK Gradual changes to forest growth and species distribution **IMPACT** Reduced wood supply – volume or by species/ product **TIMEFRAME** Long-term	• Potential to impact the distribution of tree species in the Acadian Forest at the landscape scale; in particular, the boreal conifer species like balsam fir and black spruce that are important to lumber and pulp and paper production. • Potential drought periods will impact tree growth and species distribution on specific sites with higher water stress (excessively well-drained sites or shallow soils).	• Active monitoring and detection program for changes in growth and yield, or species shifts. **(P)** • Follow guidance of locally driven research on expected tree species distribution under a range of climate scenarios. **(P)** • Maintenance of multiple age classes and species combinations across the landscape. **(P)** • Tree improvement program allowing for the selection of resilient parents and individuals. **(P)** • Shortened planted area rotations (40 years) to reduce the risk of longer-term changes to tree growth and yield. **(P)** • Active research on drought resiliency by adapting densities and water use. **(P)** • Species and site matching with intensive silviculture practices. **(P)** • Adaptable 80-year management planning process reforecast every five years. **(P)** • Shifting to deeper rooted species to increase drought tolerance and wind resistance. **(P)**

PHYSICAL RISKS	RISK DESCRIPTION	STRATEGIES TO MITIGATE RISKS

RISK
Increase in catastrophic events – wildfire, forest pests and windthrow
 	
IMPACT
Reduced wood supply
 	
TIMEFRAME
Medium to long term Forest
	• An increase in frequency or severity of wildfires will impact short and long-term wood supply across all landowners (freehold, Crown and private). Planted conifers on freehold and Crown are highly susceptible to wildfire.
	• Interface (meeting of woodlands and human developments) wildfires could impact infrastructure and homes in rural communities that support operations, sawmills, wood yards, and remote logging camps.
	• Changing temperature impacting the climate's suitability to new forest pests (insects or disease) or increased stress on trees raises susceptibility to existing forest pests.
	• Increased strength and frequency of winds increases the risk of landscape-scale catastrophic blowdown events where significant patches of forest could be blown over in single events and/or risk of single tree blowdown events over the course of multiple high-wind events.
		• Investments in infrastructure, tools, and training to ensure safe and aggressive wildfire response:
		  • Airstrip upgrades completed in 2021. **(C)**
		  • New fire trucks purchased and delivered in 2022. **(C)**
		  • New single engine air tankers ordered to replace existing fleet. **(C)**
		  • New monitoring aircraft purchased in 2021. **(C)**
		• 2020 MOU with New Brunswick Department of Natural Resources on fire response and enhancing JDI training to national standards. **(C)**
		• Investments in mechanized firefighting to reduce reliance on human resources initiated in 2020. **(P)**
		• Forest fuel mapping. **(P)**
		• Maintaining awareness of new forest pests. **(P)**
		• Species and site matching with intensive silviculture practices. **(P)**
		• Participation in the Natural Resources Canada-led Spruce Budworm Early Intervention Strategy Program, with the potential to apply lessons learned to new forest pests. **(P)**
		• Annual monitoring and detection of stressed trees and mortality, windthrow and blowdown. **(P)**
		• Immediate salvage harvesting of catastrophic losses with an adaptable management plan. **(P)**
		• 80-year management planning process re-forecasted every five years. **(P)**

(C): Complete **(P)**: In Progress **(I)**: To Investigate

(C): Complete **(P)**: In Progress **(I)**: To Investigate

Kevin Richardson, Grand Lake Timber, Chipman, New Brunswick

Grand River Pellets, Saint Leonard, New Brunswick

OPPORTUNITIES

A changing climate, government policies and changes in consumer behaviours associated with a concern for the environment could also result in opportunities for the Supply Chain. Beginning with a healthy diverse forest and as part of a well-capitalized, modern manufacturing base, our Supply Chain can respond the increasing demand for renewable forest products and energy.

Climate Change Related Opportunities in the Forest Supply Chain

OPPORTUNITY	DESCRIPTION OF OPPORTUNITY	STRATEGY TO EXECUTE
Increased demand for renewable building products	The demand for renewable and low carbon building products to replace concrete and steel will benefit lumber producers. This includes traditional lumber products in addition to mass timber, engineered wood products and panels for construction.	• Focus on silviculture practices that increase sawlog production, such as species site matching, aggressive early competition control techniques and commercial thinning. **(P)** • Increase investments in sawmill technology focused on improving recovery. **(P)** • Match future sawmill growth to the growing wood supply. **(P)** • Investigate innovative building products such as cross-laminated timber. **(I)**
Increased demand for renewable packaging products	Demand for alternatives to single-use plastics will continue to grow. There is the opportunity to produce more renewable alternatives or to wrap finished consumer goods with paper.	• Increase Kraft pulp production. Kraft pulp can be used in applications, including producing renewable packaging. **(I)** • Reduce plastic waste in consumer goods packaging by switching to paper packaging. **(P)** • Increase the quality of corrugating medium products. **(P)**
Increased demand for renewable energy	The growing wood supply and forest products manufacturing opportunities increases the amount of residual biomass that could be converted to energy (e.g., more bark, lignin, sawdust, shavings, unused forest residues).	• Opportunities to produce more green electricity from waste steam at Irving Pulp & Paper. **(I)** • Opportunities to use excess hot water from Irving Pulp & Paper. **(I)** • Increase wood pellet production from sawmill residues. **(P)** • Investigate opportunities for wind power on freehold lands. **(I)** • Opportunity to use surplus bark (hog fuel) for new green energy production. **(I)**

(C): Complete **(P)**: In Progress **(I)**: To Investigate

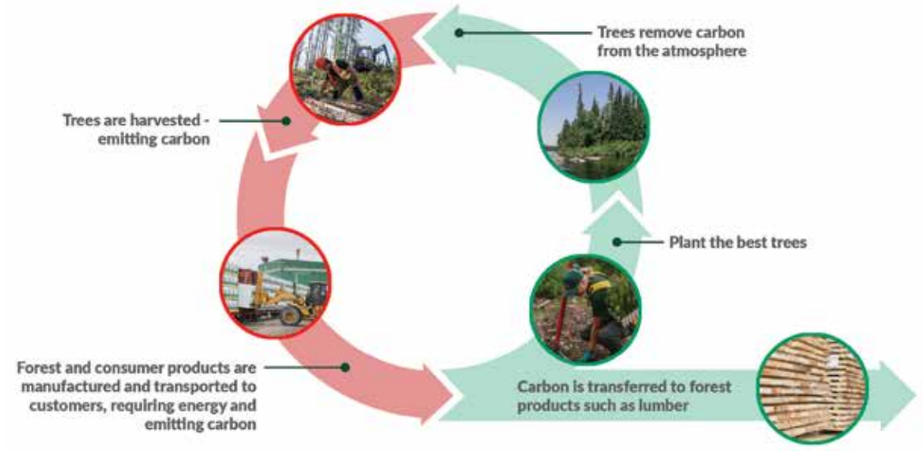
(C): Complete **(P)**: In Progress **(I)**: To Investigate

GHG EMISSIONS AND ENERGY USE

Understanding and reducing our greenhouse gas footprint is a shared priority for both us and our external partners. Being a good corporate citizen is important to us.

We recognize forest products manufacturing is an energy intensive business and as such has the potential to release significant greenhouse gas emissions from manufacturing facilities and upstream and downstream transportation. Nevertheless, forests and forest products also remove significant quantities of GHG from the atmosphere and can store these emissions long-term in forest products like lumber, balancing our footprint.

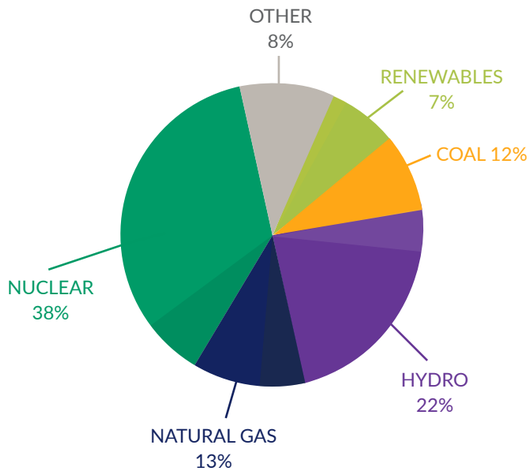
In addition to the physical risks outlined in the previous section, the Supply Chain is subject to transitionary risks as governments take measures to reduce the impacts of climate change by regulating a reduction in GHG emissions. These efforts and policies have added and will continue to add inflationary costs to all aspects of the Supply Chain.



TRANSITION RISK – INFLATIONARY COSTS

Steering Committee members have identified and assessed government policies that place a price on carbon or regulate the use of fossil fuels will increase the cost of both direct and indirect energy like electricity. These policies will also increase indirect costs associated with the upstream and downstream Supply Chain and transportation using fossil fuels. It is not possible to pass all these costs onto customers. Therefore, the Steering Committee has directed a robust accounting of the carbon footprint in the Supply Chain to enable the understanding of risk and opportunities. In addition, the Steering Committee members have oversight into initiatives to decarbonize through fuel switching, fuel efficiency and green energy generation.

NB ELECTRICITY GENERATION PROFILE



Carter McGinnis, Irving Tissue, Saint John, New Brunswick

Transition Risks in the Forest Supply Chain

TRANSITION RISK	RISK DESCRIPTION	STRATEGIES TO MITIGATE RISKS
RISK Federal Carbon Tax Policy – Canada **IMPACT** Increased Cost **TIMEFRAME** Short-Term	• The Canadian federal price on carbon will move from $40 per tonne in 2021 to $170 per tonne in 2030, impacting large emitters under an Output Based Pricing System, and all other fossil fuels via a retail fuel tax. • Cost increases are expected in the Supply Chain, small and medium manufacturing facilities, and freight to customers (where there is no ability to offset emissions and no available alternative energy source available e.g., logging, transportation). These policies will have significant upward pressure on costs that cannot always be passed on to end users.	• Robust accounting of the Forest Supply Chain carbon footprint to identify sources of GHG emissions and prioritize risks and opportunities to mitigate. **(C)** • Fuel efficiency initiatives short-term. **(P)** • Reduction in equipment idling. **(P)** • Switching to higher payload trucking configurations (tridem drive trucks). **(P)** • Switching from energy-intensive full tree harvesting and in-woods chipping systems. **(P)** • Increase the use of rail freight. **(P)** • Tools, technology, and best practices to improve productivity. **(I)** • *Fuel-switching (medium term).* • Hybrid or electrification of mill yard equipment. **(I)** • *Fuel efficiency initiatives at large industrial sites short-term.* • Energy efficiency audits in tissue mills to increase productivity and increase re-use of heat and steam. **(P)** • Fuel switching at Irving Paper Limited to purchase steam from nearby electrical generation facility, rather than consuming natural gas to generate steam. **(I)** • Increase capacity at Irving Pulp & Paper to utilize more black liquor and other biomass sources. **(I)**
RISK Federal Climate Policy – electricity generation **IMPACT** Increased Cost **TIMEFRAME** Medium-Term	• Federal climate policy mandating the closure of coal fired electricity generation creates significant uncertainty to the New Brunswick and NS electricity supply and increased cost structure. Increasing electricity costs will have significant impact on high electricity users like Irving Paper. • Significant debt loads at NB Power limit the ability to transition fossil fuel generating stations, add distribution associated with renewable energy, and maintain existing hydro and nuclear facilities. Electricity costs are highly likely to rise.	• Use surplus electricity from Irving Pulp & Paper capacity improvements. **(I)** • Exploration of wind power investments. **(I)**

Driving Business Forward with the Northern New Brunswick A-train Logger

In 2022 we invested in our first A-train logger as part of a New Brunswick pilot program designed to increase haul loads and improve fuel efficiency. An A-train truck is configured with extra axles to safely haul larger amounts of logs, pulp and other forest products. These trucks can haul twice as much volume as a traditional truck, resulting in reduced fuel consumption and emissions with fewer trucks on the road.

Northern New Brunswick Woodlands

(C): Complete **(P)**: In Progress **(I)**: To Investigate

ROBUST ACCOUNTING OF OUR CARBON FOOTPRINT

The first step in understanding our exposure to these transitionary risks is to understand our carbon footprint and energy use. We can then target opportunities to reduce our GHG footprint through fuel efficiency or fuel switching. We are also positioned to increase removals across our Supply Chain by increasing forest growth and the production of solid wood products which transfer CO_2 captured in trees to lumber.

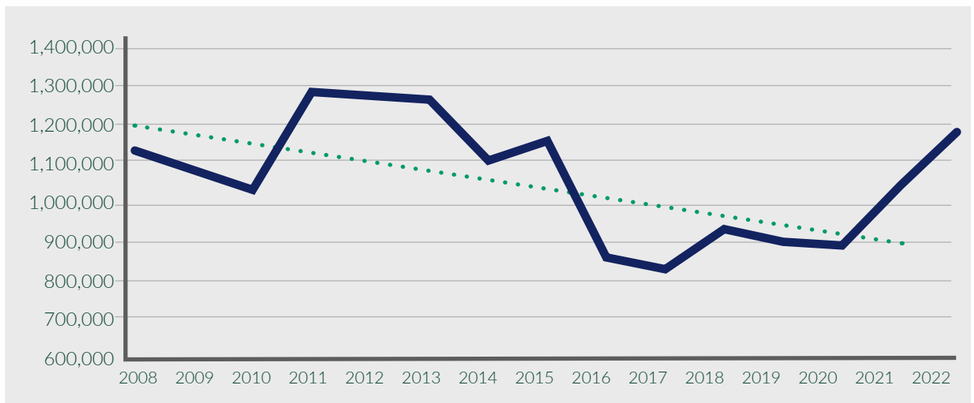
Understanding and reducing our carbon footprint began with our pulp and paper operations in the 1990s. We have had internal measurement and reporting in place for Scope 1 and 2 emissions since 2008 across the Supply Chain, with a focus on fuel switching to biogenic fuels and producing electricity with waste steam to reduce emissions.

After a decline in emissions from capital investments in fuel switching to biomass, emissions have now grown since 2008 due to expansion in the tissue business. Future capital investments and energy efficiency improvements will begin to reduce emissions in future years.

In 2013, we participated in a study with the University of New Brunswick's Dr. Chris Hennigar to model the carbon balance from forestry activities, manufacturing facilities and forest products to end of life. The study showed that our forestry business would absorb more carbon than it emits over the next 50 years.

MAINTAIN CARBON NEUTRALITY IN THE FOREST SUPPLY CHAIN THROUGH 2024 PER PAS2060:2014

FOREST SUPPLY CHAIN SCOPE 1 & 2
TOTAL GHG EMISSIONS (MTONS OF CO_2e)



[1] Emissions prior to 2020 were not independently reviewed.

REPORTING TO THE PAS2060:2014 STANDARD

To report our 2022 greenhouse gas footprint, we followed the internationally recognized PAS2060:2014 standard, the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting guidance, and the Carbon Budget Model for the Canadian Forest Sector (CBM-CFS3). We produced our first Qualifying Explanatory Statement (QES) for 2020 emissions and removals for the organizational boundary of the integrated Forest Supply Chain and this process was repeated to account for 2021 and 2022.

The QES for the organizational boundary was made public in 2022 with a Declaration of Achievement of Carbon Neutrality. Both the 2020 and 2021 QES were verified to a limited level of assurance by KPMG Performance Registrar Inc. .

Sussex Sawmill, Sussex, New Brunswick

The Declarations of Carbon Neutrality (Declaration) for 2020 to 2021 encompass activities within the financial control of JDI in three major categories in the Supply Chain:

- Scope 1 Direct GHG emissions
- Scope 2 Indirect GHG emissions associated with purchased energy
- Scope 3 Indirect GHG emissions from activities in the Supply Chain
- Net Forest Growth from freehold forests
- Net transfer of carbon dioxide to harvested wood products

In addition to the accounting of GHG emissions and removals, the QES describes the following:

- A detailed description of the activities that make up the Supply Chain.
- Disclosure of biogenic carbon emissions.
- Exclusions of non-material GHG emissions and rationale.
- Analysis and discussion of inherent uncertainty associated with estimating and accounting for GHG emissions.
- Planned short-term reductions in the carbon footprint.

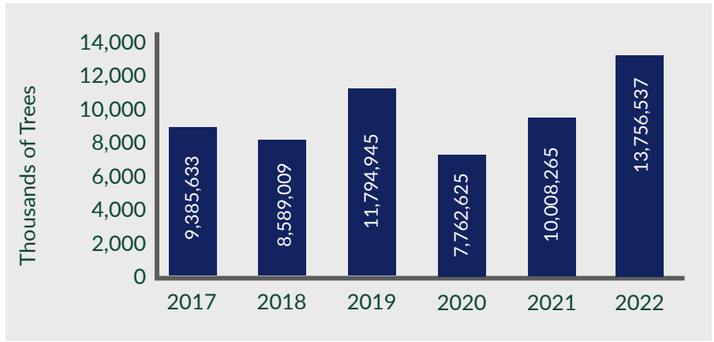
The Supply Chain is committed to maintaining carbon neutrality within the boundary from the year 2022 until the end of 2024.

In 2024, we will repeat this process under PAS2060:2014 and disclose our 2023 carbon footprint in the Supply Chain in an updated QES.

PLANTING TREES AND REDUCING OUR CARBON FOOTPRINT

We can reduce our carbon footprint by both reducing emissions and increasing removals through growing forests and producing durable forest products like lumber. We know we need to take all three actions to have the greatest impact. Tree planting is the foundation of our commitment to growing more wood than we harvest. In the past few years, we have made substantial capital investments in our nurseries to increase our seedling output so we can plant an additional 6 million trees a year on freehold land by 2025.

FREEHOLD TREE PLANTING LEVELS



INCREASE TREE PLANTING LEVELS ON FREEHOLD LAND TO 16M TREES BY 2025

Mélanie Ringuette, Northern New Brunswick Woodlands

2020 - 2022 GREENHOUSE GAS EMISSIONS AND REMOVALS

Type	Detail- Emission/(Removal)	2020 MTONS CO_2e	2021 MTONS CO_2e	2022 MTONS CO_2e
Scope 1	Direct Fuels	391,000	453,000	553,000
Scope 2	Indirect Electricity	510,000	586,000	663,000
Scope 3	Upstream and Downstream Supply Chain	909,000	998,000	909,000
Sub-Total: Manufacturing and Supply Chain Emissions		**1,809,000**	**2,037,000**	**2,125,000**
Transfer	Net transfers (to) / from HWP[1]	(1,037,000)	(1,048,000)	(976,000)
Removal	Net Forest Growth and Land Use – Freehold	(2,335,000)	(2,477,000)	(2,364,000)
Sub-Total: HWP Transfer plus Net Forest Growth (Removal)		**(3,372,000)**	**(3,524,000)**	**(3,340,000)**
Total: Net Forest Products Value Chain Emissions/ (Removals)		**(1,563,000)**	**(1,488,000)**	**(1,216,000)**

THE FOREST SUPPLY CHAIN WILL CONTINUE TO MAINTAIN CARBON NEUTRALITY THROUGH THE FOLLOWING ACTIONS:

- Reducing CO_2 emissions in Supply Chain manufacturing operations under JDI financial control (i.e. sawmills, wood pellet, horticultural products, Kraft pulp, paper, corrugating medium, tissue, and diaper manufacturing facilities).
- Investing in Supply Chain manufacturing facilities, which increase CO_2 transferred and stored into harvested wood products.
- Sustainable forest management, resulting in improved forest growth and increased CO_2 removals by the forest on JDI-owned freehold lands in the provinces of New Brunswick, Nova Scotia and the state of Maine.

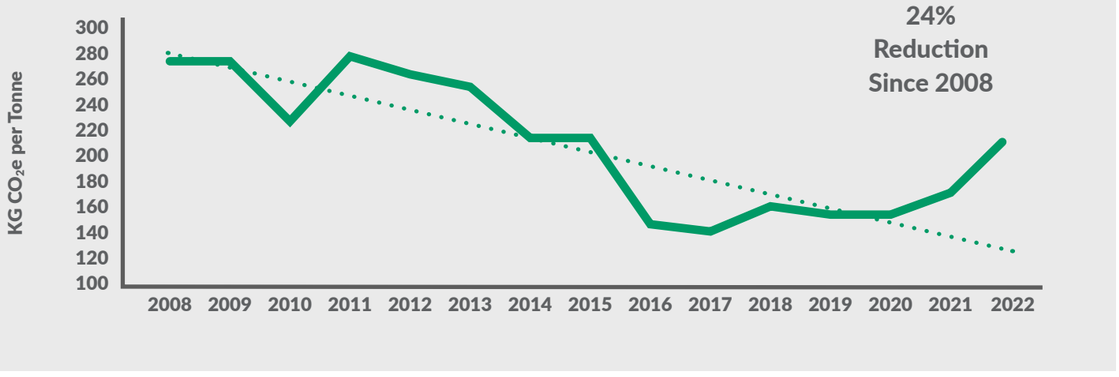
To read more about our carbon footprint, accounting methodology, biogenic carbon emissions, uncertainty analysis, exclusions and carbon footprint management plan, visit www.jdirvingsustainability.com

1. Restatement of Transfers to Harvested Wood Products
Restatement of the net carbon footprint of the Forest Supply Chain related to the transfer of CO2e emissions to Harvested Wood Products (HWP) is required due to a mathematical error in a unit conversion calculation for lumber products that occurred in 2020 and was repeated in 2021. While addressing this error, the methodology for lumber transfer to HWP was also adjusted to better reflect the species differences between dimensional lumber products (spruce/fir), compared to white pine and hardwood lumber products, and to better reflect the actual and nominal dimensions and relative densities of those products. The mathematical error and methodology change have resulted in a net increase in the transfer of CO2e to lumber products and therefore there is no impact on the status of either organizational or product claims related to carbon neutrality. As the impact of these changes results in a change to HWP approximately equal to the 10% restatement threshold in our baseline policy, the baseline and subsequent years have been restated.

GREENHOUSE GAS EMISSION INTENSITY

To address changes to absolute emissions due to an expanding boundary or business growth, greenhouse gas emissions are also reported on an intensity basis.

FOREST SUPPLY CHAIN SCOPE 1 & 2 EMISSIONS INTENSITY SINCE 2008[1]



1] Emissions prior to 2020 were not independently reviewed.

Saddleback Falls, Southern NB Woodlands

APPENDIX

In this appendix you will find the following:

TCFD Reference Table

GRI/SASB Content Indexes

Independent Practitioners' Limited Assurance Report

2022 Performance Data Table

Endnotes and 2022 Restatements

Task Force On Climate-Related Financial Disclosure Reference Table

Alignment to the disclosure required by the TCFD is incorporated throughout the report. The table below references the disclosure required by the TCFD and where this information is located.

TCFD REFERENCE GUIDE

TCFD CATEGORY	Guidance	Report Section	Page
Governance	a. Describe the board's oversight of climate-related risks and opportunities.	Sustainability Governance	18
	b. Describe management's role in assessing and managing climate-related risks and opportunities.	Sustainability Governance	18-19
Strategy	a. Describe climate-related risks and opportunities the organization has identified over the short term, medium term and long term.	Climate Change & Adaptation GHG Emissions & Energy Use	78-79 81, 84
	b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning.	Climate Change & Adaptation GHG Emissions & Energy Use	78-79 81,84
	c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including at 2 °C or lower scenario.	Climate Change & Adaptation	74-76
Risk Management	a. Describe the organization's processes for identifying and assessing climate related risks.	Sustainability Governance	19
	b. Describe the organization's processes for managing climate related risks.	Sustainability Governance	19
	c. Describe how processes for identifying and managing climate-related risks are integrated into the organization's overall risk management.	Sustainability Governance Climate Change & Adaptation	18-19 72
Metrics and Targets	a. Disclose the metrics used by the organization to assess climate-related risk and opportunity in line with its strategy and risk management process.	Data Tables: Environment – GHG Emissions Biogenic CO2 Emissions GHG Emission Intensity Energy Energy Intensity Water Water Intensity Trees Planted Forest Harvest & Growth Rates	103-109 113-116 117
	b. Disclose Scope 1, Scope 2 and if appropriate Scope 3 greenhouse gas emissions and the related risks.	GHG Emissions & Energy Use: 2020-2022 GHG Emissions and Removals, GHG Intensity	89-90 103-105
	c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	GHG Emissions & Energy Use: Reporting to the PAS2060:2014 Standard	87-88

GRI Content Index

J.D. Irving, Limited has reported the information cited in this Global Reporting Index (GRI) content index for the period from 1 January 2022 to 31 December 2022 with reference to the GRI Standards. This means that our reporting has referenced selected General Disclosures, as well as selected Topic-Specific Standards we have deemed material. In this GRI Context Index, we list our disclosures with reference to the applicable GRI Standards and the location within the report where the disclosures are addressed. The GRI 1 used for this report is GRI 1: Foundation 2021.

GRI STANDARD #	INDICATOR NAME	LOCATION (page)
GRI 2: GENERAL DISCLOSURES 2021		
The organization and its sustainability reporting practices		
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GRI 2-2	Entities included in the organization's sustainability reporting	6
GRI 2-3	Reporting period, frequency and contact point	8
GRI 2-4	Restatements of information	124
GRI 2-5	External assurance	9, 98-102
ACTIVITIES AND WORKERS		
GRI 2-6	Activities, value chain and other business relationships	6
GRI 2-7	Employees	28
GRI 2-8	Workers who are not employees	28
GOVERNANCE		
GRI 2-9	Governance structure and composition	18
GRI 2-11	Chair of the highest governing body	18-19
GRI 2-12	Role of the highest governance body in overseeing the management of impacts	18-19
GRI 2-13	Delegation of responsibility for managing impacts	18-19
GRI 2-14	Role of the highest governance body in sustainability reporting	18-19
GRI 2-15	Conflicts of interest	28-29
GRI 2-16	Communication of critical concerns	19
STRATEGIES, POLICIES AND PRACTICES		
GRI 2-22	Statement on sustainable development strategy	7
GRI 2-25	Processes to remediate negative impacts	19
GRI 2-26	Mechanism for seeking advice and raising concerns	19
GRI 2-27	Compliance with laws and regulations	
GRI 2-28	Membership associations	28
STAKEHOLDER ENGAGEMENT		
GRI 2-29	Approach to stakeholder engagement	21
GRI 2-30	Collective bargaining agreements	122
GRI 3: MATERIAL TOPICS 2021		
GRI 3-1	Process to determine material topics	21
GRI 3-2	List of material topics	21
GRI 3-3	Management of material topics	21, 25

GRI STANDARD #	INDICATOR NAME	LOCATION (page)
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GRI 201-1	Direct economic value generated and distributed	123
GRI 201-2	Financial implications and other risks and opportunities due to climate change	74-84
GRI 201-3	Defined benefit plan obligation and other retirement plans	123-124
GRI 203: INDIRECT ECONOMIC IMPACTS 2016		
GRI 203-1	Infrastructure investments and services supported	123
GRI 203-2	Significant indirect economic impacts	123
GRI 204: PROCUREMENT PRACTICES 2016		
GRI 204-1	Proportion of spending on local suppliers	123
GRI 205: ANTI-CORRUPTION 2016		
GRI 205-2	Communication and training about anti-corruption policies and procedures	28-29
GRI 205-3	Confirmed incidents of corruption and actions taken	125
GRI 206: ANTI-COMPETITIVE BEHAVIOUR 2016		
GRI 206-1	Legal actions for anti-competitive behaviour, anti-trust and monopoly practices	125
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GRI 301-2	Recycled input materials used	117
GRI 302: ENERGY 2016		
GRI 302-1	Energy consumption within the organization	108
GRI 302-3	Energy intensity	110
GRI 303: WATER AND EFFLUENTS 2016		
GRI 303-1	Interactions with water as a shared resource	64
GRI 303-2	Management of water discharge-related impacts	66-68
GRI 303-3	Water withdrawal	113
GRI 303-4	Water discharge	113-114
GRI 303-5	Water consumption	113, 115
GRI 304: BIODIVERSITY 2016		
GRI 304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	56
GRI 304-2	Significant impacts of activities, products and services on biodiversity	56
GRI 304-3	Habitats protected or restored	62, 117
GRI 304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	117
GRI 305: EMISSIONS 2016		
GRI 305-1	Direct (Scope 1) GHG emissions	89, 103
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GRI 306: WASTE 2020		
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GRI 306-4	Waste diverted from disposal	112
GRI 306-5	Waste directed to disposal	111
GRI 307: ENVIRONMENTAL COMPLIANCE 2016		
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WATER MANAGEMENT		
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CODE	ACCOUNTING METRIC	LOCATION (page)
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RR-FM-450a.1	Description of strategy to manage opportunities for and risks to forest management and timber production presented by climate change	76-84
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RR-FM-000.B	Aggregate standing timber inventory	117
RR-FM-000.C	Timber harvest volume	117

APPENDIX

Independent Practitioners' Limited Assurance Report

KPMG LLP
Telephone (604) 691-3000
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INDEPENDENT PRACTITIONER'S LIMITED ASSURANCE REPORT

To the management of J.D. Irving, Limited (the "Entity")

We have undertaken a limited assurance engagement on certain subject matter information of the Entity, included in the accompanying 2022 J.D. Irving, Limited Forest Supply Chain Environment, Social and Governance Report (the "Report"), as at and for the year ended December 31, 2022 as described in the table below.

Subject Matter Information	Reported amount and units	Page number in the Report	Applicable criteria and basis of presentation
Net Forest Products Value Chain Emissions / (Removals)	(1,216,000) Tonnes CO_2e	Page 89	• The World Resources Institute / World Business Council for Sustainable Development Greenhouse Gas Protocol - Corporate Accounting and Reporting Standard Revised Edition; • GHG Protocol Scope 2 Guidance, An amendment to the GHG Protocol Corporate Standard; • The Corporate Value Chain (Scope 3) Accounting and Reporting Standard as applicable to Scope 3 emission categories 1-9; and, • Internally developed criteria. Presented as: • Manufacturing and Supply Chain Emissions for the year ended December 31, 2022 (Scope 1, 2 and 3); • Harvested Wood Product (HWP) Transfer plus Net Forest Growth (removal) for the year ended December 31, 2022; and, • Net Forest Products Value Chain Emissions/(Removals) for the year ended December 31, 2022.
Lands under Irving management	2,377,640 hectares	Page 45	Internally developed criteria. Presented as the sum of freehold land and Crown land, managed by the Entity as at December 31, 2022.
Percentage of forested landbase harvested	1.4%	Page 47	Internally developed criteria. Presented as the area harvested during 2022 as a percentage of total forested lands under management by the Entity as at December 31, 2022.

Subject Matter Information	Reported amount and units	Page number in the Report	Applicable criteria and basis of presentation
Conservation area on lands under Irving management	529,252 hectares	Page 62	Internally developed criteria. Presented as the area of freehold land and Crown land managed by the Entity which is maintained for the primary purpose of conservation as at December 31, 2022.
Percentage of conservation forest	22%	Page 62	Internally developed criteria. Presented as the conservation forest area as a percentage of total lands under management by the Entity as at December 31, 2022.
Recordable incident rate	2.0 per 200,000 hours	Page 32	Internally developed criteria. Presented as the total number of employee recordable injuries during 2022 multiplied by 200,000 and divided by total hours worked.
Lost time injury rate	0.7 per 200,000 hours	Page 33	Internally developed criteria. Presented as the total number of employee lost time injuries during 2022 multiplied by 200,000 and divided by total hours worked.
Critical injury rate	0.10 per 200,000 hours	Page 33	Internally developed criteria. Presented as the total number of employee critical injuries during 2022 multiplied by 200,000 and divided by total hours worked.
Percentage of new employees who have signed off on the Business Code of Conduct Policy	88%	Page 29	Internally developed criteria. Presented as the total number of new employees in 2022, within the forest supply chain, who have signed the Code of Conduct divided by the number of new employees hired in 2022.
Community engagement (spend $)	$1,7 million in charitable donations in 2022 $147,442 in scholarships granted in 2022	Page 38 Page 39	Internally developed criteria. Presented as the total Entity spend ($) on scholarships and donations for the year ended December 31, 2022.

Other than as described in the preceding table, which sets out the scope of our engagement, we did not perform assurance procedures on the remaining information included in the Report, and accordingly, we do not express a conclusion on this information.

Management's Responsibility

Management is responsible for the preparation and presentation of the subject matter information in accordance with the applicable criteria.

The Subject Matter Information, contained within the Report, has been determined by management on the basis of the Entity's assessment of the material issues contributing to Environmental, Social and Governance (ESG) performance and that most impact and influence its stakeholders

There are no mandatory requirements for the preparation, publication or presentation of the subject matter information. As such, the Entity applies the criteria described under the applicable criteria and basis of presentation in the table above in calculating the reported amounts including their own internal reporting guidelines and definitions which can be found in the Report (collectively the "applicable criteria").

Management is responsible for determining the appropriateness of the use of the applicable criteria.

Management is also responsible for determining the Entity's objectives in respect of ESG performance and reporting, including the identification of stakeholders and material issues.

Management is also responsible for such internal control as management determines necessary to enable the preparation and presentation of the subject matter information that is free from material misstatement, whether due to fraud or error.

Practitioner's Responsibilities

Our responsibility is to express a limited assurance conclusion on the subject matter information based on evidence we have obtained. We conducted our limited assurance engagement in accordance with International Standards on Assurance Engagements (ISAE) 3000 (Revised) *Assurance Engagements other than Audits or Reviews of Historical Financial Information* and ISAE 3410 *Assurance Engagements on Greenhouse Gas Statements*. These standards require that we plan and perform our engagement to obtain limited assurance about whether based on the procedures performed and evidence obtained, any matter(s) has come to our attention to cause us to believe that the subject matter information is materially misstated.

The procedures performed in a limited assurance engagement vary in nature and timing from and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Accordingly, it is not a guarantee that a limited assurance engagement conducted in accordance with this standard will always detect a matter that causes the practitioner to believe that the subject matter information is materially misstated.

Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the decisions of users of our report.

The nature, timing and extent of procedures performed depends on our professional judgment, including an assessment of the risks of material misstatement, whether due to fraud or error, and involves obtaining evidence about the subject matter information.

J.D. Irving, Limited
Limited Assurance Report
July 28, 2023

Our engagement included: assessing the appropriateness of the subject matter information, the suitability of the criteria used by the Entity in preparing the subject matter information in the circumstances of the engagement and evaluating the appropriateness of the methods, policies and procedures, and models used in the preparation of the subject matter information, and the reasonableness of estimates made by the Entity.

Our engagement included, amongst others, the following procedures:

- Inquiries with relevant staff at the corporate and site level to understand the data collection and reporting processes for the subject matter information;
- Assessment of the suitability and application of the applicable criteria in respect of the subject matter information;
- Where relevant, performing walkthroughs to test the design of internal controls relating to data collection and reporting of the subject matter information;
- Comparing the reported data for the subject matter information to underlying data sources on a sample basis;
- Inquiries regarding key assumptions, estimates and the appropriateness of the associated models, methods, policies and procedures;
- The re-performance of calculations on a sample basis; and,
- Reviewing the presentation of the subject matter information in the Report to determine whether the information presented is consistent with our overall knowledge of, and experience with, the ESG performance of the Entity.

The engagement was conducted by a multidisciplinary team which included professionals with suitable skills and experience in both assurance and in the applicable subject matter.

Practitioner's Independence and Quality Management

We have complied with the relevant rules of professional conduct/code of ethics applicable to the practice of public accounting and related to assurance engagements, issued by various professional accounting bodies, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

The firm applies Canadian Standard on Quality Management 1, *Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements* which requires the firm to design, implement and operate a system of quality management, including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

J.D. Irving, Limited
Limited Assurance Report
July 28, 2023

Significant Inherent Limitations

Historical non-financial information, such as that contained in the Report, is subject to more inherent limitations than historical financial information, given the characteristics of the underlying subject matter and methods used for determining this information. The absence of a significant body of established practice on which to draw allows for the selection of different but acceptable evaluation techniques, which can result in materially different measurements and can impact comparability. The nature and methods used to determine such information, as described in the applicable criteria, may change over time, and it is important to read the Entity's reporting methodology within the Report.

Conclusion

Our conclusion has been formed on the basis of, and is subject to, the matters outlined in this report. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion. Based on the procedures performed and evidence obtained, no matters have come to our attention to cause us to believe that the subject matter information as described above and disclosed in the Entity's Report as at and for the year ended December 31, 2022, has not been prepared and presented, in all material respects, in accordance with the applicable criteria as at the date of our report.

KPMG LLP

Chartered Professional Accountants
July 28, 2023
Vancouver, Canada

DATA TABLES

Data	Measurement	2020	2021	2022	Footnote
ENVIRONMENT					
GREENHOUSE GAS EMISSIONS					
Scope 1 Emissions, Total	**t CO_2e**	**390,851**	**453,067**	**553,157**	
by division					
Woodlands and Sawmills	t CO_2e	31,616	47,634	79,918	a
Woodlands	t CO_2e	6,588	9,932	11,532	a
Sawmills	t CO_2e	25,028	37,702	68,387	b
Pulp and paper	t CO_2e	165,710	171,776	208,862	
Irving Pulp & Paper, Limited	t CO_2e	62,747	66,769	77,768	
Irving Paper Limited	t CO_2e	82,075	84,647	105,807	
Lake Utopia Paper Limited	t CO_2e	20,888	20,360	25,287	
Irving Personal Care	t CO_2e	67	76	77	c
Irving Tissue	t CO_2e	192,989	233,581	264,300	d
Scope 2 Emissions (location-based), Total	**t CO_2e**	**509,797**	**585,656**	**662,719**	
by division					
Woodlands and Sawmills	t CO_2e	52,852	61,926	65,501	a
Woodlands	t CO_2e	453	979	1,187	a
Sawmills	t CO_2e	52,399	60,946	64,315	b
Pulp and paper	t CO_2e	323,093	379,049	406,649	
Irving Pulp & Paper, Limited	t CO_2e	3,799	18,088	20,984	
Irving Paper Limited	t CO_2e	287,399	322,883	344,043	
Lake Utopia Paper Limited	t CO_2e	31,895	38,078	41,622	
Irving Personal Care	t CO_2e	5,020	5,653	4,788	c
Irving Tissue	t CO_2e	128,556	139,028	185,781	d
Scope 3 Emissions, Total	**t CO_2e**	**908,572**	**998,229**	**908,838**	
by division					
Woodlands	t CO_2e	135,917	150,753	139,110	
Sawmills	t CO_2e	122,730	140,292	132,913	
Pulp and paper	t CO_2e	283,920	242,926	223,571	
Irving Pulp & Paper, Limited	t CO_2e	0	79,216	71,901	e
Irving Paper Limited	t CO_2e	0	127,917	117,663	e
Lake Utopia Paper Limited	t CO_2e	0	35,318	33,424	e
Irving Personal Care	t CO_2e	89,714	101,029	61,781	c
Irving Tissue	t CO_2e	276,291	363,228	351,462	d
Scope 1, 2 and 3 Emissions, Total	t CO_2e	**1,809,220**	**2,036,952**	**2,124,715**	
by division	t CO_2e				
Woodlands and Sawmills	t CO_2e	343,115	400,605	417,444	a
Woodlands	t CO_2e	142,958	161,664	151,829	a
Sawmills	t CO_2e	200,157	238,941	265,615	b

Data	Measurement	2020	2021	2022	Footnote
Pulp and paper	t CO_2e	772,723	793,752	839,082	
Irving Pulp & Paper, Limited	t CO_2e	0	164,073	170,654	
Irving Paper Limited	t CO_2e	0	535,447	567,513	
Lake Utopia Paper Limited	t CO_2e	0	93,756	100,333	
Irving Personal Care	t CO_2e	94,801	106,758	66,646	c
Irving Tissue	t CO_2e	597,836	735,837	801,543	d
Scope 1 and 2 Emissions, Total	**t CO_2e**	**900,648**	**1,038,723**	**1,215,877**	
by division	t CO_2e				
Woodlands and Sawmills	t CO_2e	84,468	109,560	145,420	a
Woodlands	t CO_2e	7,041	10,911	12,719	a
Sawmills	t CO_2e	77,427	98,649	132,701	b
Pulp and paper	t CO_2e	488,803	550,825	615,511	
Irving Pulp & Paper, Limited	t CO_2e	66,546	84,857	98,752	
Irving Paper Limited	t CO_2e	369,474	407,530	449,850	
Lake Utopia Paper Limited	t CO_2e	52,783	58,438	66,909	
Irving Personal Care	t CO_2e	5,087	5,729	4,865	c
Irving Tissue	t CO_2e	321,545	372,609	450,081	d
(REMOVAL) / EMISSION FROM HARVESTED WOOD PRODUCTS					
(Removal)/Emission from Lumber	t CO_2e	(891,246)	(929,423)	(883,750)	s
(Removal)/Emission from Paper	t CO_2e	224	(15,751)	13,006	
(Removal)/Emission from Pulp	t CO_2e	23,510	(12,846)	35,367	
(Removal)/Emission from Tissue	t CO_2e	(154,464)	(105,020)	(144,119)	
(Removal)/Emission from Corrugating Medium	t CO_2e	(14,827)	15,436	3,138	
FOREST CARBON EMISSIONS AND (REMOVAL)					
(Removal)/Emission from Freehold	t CO_2e	(2,335,282)	(2,476,710)	(2,364,100)	f
(Removal)/Emission from Crown License 7	t CO_2e	(2,448,668)	(1,556,092)	(2,547,400)	
NET CARBON FOOTPRINT					
Net Carbon Footprint	t CO_2e	(1,562,865)	(1,488,292)	(1,215,743)	f, s
BIOGENIC CO_2 EMISSIONS					
Biogenic CO_2 Emissions, Total		**1,551,518**	**1,340,174**	**1,244,178**	
by division	t CO_2				
Woodlands	t CO_2	0	0	0	
Sawmills	t CO_2	436,937	237,911	209,736	
Pulp and paper	t CO_2	1,114,581	1,102,263	1,034,442	
Irving Pulp & Paper, Limited	t CO_2	1,035,198	1,018,250	954,805	
Irving Paper Limited	t CO_2	0	0	0	
Lake Utopia Paper Limited	t CO_2	79,383	84,013	79,636	
Irving Personal Care	t CO_2	0	0	0	
Irving Tissue	t CO_2	0	0	0	

Data	Measurement	2020	2021	2022	Footnote
GREENHOUSE GAS EMISSIONS INTENSITY					
Scope 1 emissions intensity, Total	**kg CO_2e / t product**	**30.3**	**35.9**	**48.1**	r
by divison					
Woodlands and Sawmills	kg CO_2e / t product	2.7	4.2	7.8	
Woodlands	kg CO_2e / t product	0.9	1.5	2.1	
Sawmills	kg CO_2e / t product	5.6	7.9	14.8	
Pulp and paper	kg CO_2e / t product	181.1	191.4	234.0	
Irving Personal Care	kg CO_2e / t product	3.0	3.7	5.5	
Irving Tissue	kg CO_2e / t product	566.1	715.8	723.2	
Scope 2 emissions intensity, Total	**kg CO_2e / t product**	**39.6**	**46.4**	**57.6**	r
by division					
Woodlands and Sawmills	kg CO_2e / t product	4.6	5.4	6.4	
Woodlands	kg CO_2e / t product	0.1	0.1	0.2	
Sawmills	kg CO_2e / t product	11.7	12.7	13.9	
Pulp and paper	kg CO_2e / t product	353.2	422.4	455.6	
Irving Personal Care	kg CO_2e / t product	223.5	272.7	342.2	
Irving Tissue	kg CO_2e / t product	377.1	426.0	508.4	
Scope 3 emissions intensity, Total	**kg CO_2e / t product**	**70.5**	**79.1**	**79.0**	r
by division					
Woodlands And Sawmills	kg CO_2e / t product	22.3	25.6	26.6	
Woodlands	kg CO_2e / t product	19.1	23.0	24.8	
Sawmills	kg CO_2e / t product	27.4	29.2	28.8	
Pulp and Paper	kg CO_2e / t product	310.4	270.7	250.5	
Irving Personal Care	kg CO_2e / t product	3,993.7	4,828.1	4,415.3	
Irving Tissue	kg CO_2e / t product	810.5	1,113.1	961.8	
Scope 1 and 2 Emissions intensity, Total	**kg CO_2e / t product**	**69.9**	**82.4**	**105.7**	r
by division					
Woodlands and Sawmills	kg CO_2e / t product	7.3	9.6	14.2	
Woodlands	kg CO_2e / t product	1.0	1.7	2.3	
Sawmills	kg CO_2e / t product	17.3	20.6	28.7	
Pulp and paper	kg CO_2e / t product	534.3	613.8	689.7	
Irving Personal Care	kg CO_2e / t product	226.5	276.3	347.7	
Irving Tissue	kg CO_2e / t product	943.2	1,141.8	1,231.6	
Scope 1, 2 and 3 Emissions intensity, Total	**kg CO_2e / t product**	**140.4**	**161.5**	**184.7**	r
by division					
Woodlands and Sawmills	kg CO_2e / t product	29.6	35.3	40.8	
Woodlands	kg CO_2e / t product	20.0	24.6	27.0	
Sawmills	kg CO_2e / t product	44.7	49.8	57.5	
Pulp and paper	kg CO_2e / t product	844.7	884.5	940.2	
Irving Personal Care	kg CO_2e / t product	4,220.1	5,104.5	4,762.9	
Irving Tissue	kg CO_2e / t product	1,753.7	2,254.9	2,193.4	

Data	Measurement	2020	2021	2022	Footnote
OTHER AIR EMISSIONS					
Nitrous oxide (NOx), Total	**Tonnes**	**1,773**	**1,774**	**1,779**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	255	300	288	
Pulp and paper	Tonnes	1,372	1,292	1,283	
Irving Pulp & Paper, Limited	Tonnes	1,034	963	927	
Irving Paper Limited	Tonnes	181	180	200	
Lake Utopia Paper Limited	Tonnes	158	149	157	
Irving Personal Care	Tonnes	0	0	0	
Irving Tissue	Tonnes	145	182	208	
Sulphur dioxide (SO x), Total	**Tonnes**	**1,130**	**1,259**	**1,623**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	75	247	457	
Pulp and paper	Tonnes	1,054	1,011	1,165	
Irving Pulp & Paper, Limited	Tonnes	575	465	491	
Irving Paper Limited	Tonnes	7	23	53	
Lake Utopia Paper Limited	Tonnes	472	523	620	
Irving Personal Care	Tonnes	0	0	0	
Irving Tissue	Tonnes	1	1	1	
Particulate matter (PM), Total	**Tonnes**	**1,963**	**2,145**	**1,928**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	1,795	1,923	1,786	
Pulp and paper	Tonnes	157	209	126	
Irving Pulp & Paper, Limited	Tonnes	131	184	99	
Irving Paper Limited	Tonnes	5	6	7	
Lake Utopia Paper Limited	Tonnes	21	20	20	
Irving Personal Care	Tonnes	0	0	0	
Irving Tissue	Tonnes	11	13	16	
Volitile Organic Compounds (VOCs), Total	**Tonnes**	**796**	**1,033**	**1,074**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	496	546	549	
Pulp and paper	Tonnes	299	310	301	
Irving Pulp & Paper, Limited	Tonnes	214	209	200	
Irving Paper Limited	Tonnes	44	45	46	
Lake Utopia Paper Limited	Tonnes	41	55	55	
Irving Personal Care	Tonnes	0	0	0	
Irving Tissue	Tonnes	1	178	224	

Data	Measurement	2020	2021	2022	Footnote
ENVIRONMENTAL COMPLIANCE					
Odour Complaints, Total	**#**	**19**	**22**	**7**	
by division					
Woodlands	#	0	0	0	
Sawmills	#	0	0	0	
Pulp and paper	#	19	22	7	
Irving Pulp & Paper, Limited	#	5	5	3	
Irving Paper Limited	#	0	0	0	
Lake Utopia Paper Limited	#	14	17	4	
Irving Personal Care	#	0	0	0	
Irving Tissue	#	0	0	0	
Environmental Fines/Convictions, Total	**#**	**0**	**0**	**0**	
by division					
Woodlands	#	0	0	0	
Sawmills	#	0	0	0	
Pulp and paper	#	0	0	0	
Irving Pulp & Paper, Limited	#	0	0	0	
Irving Paper Limited	#	0	0	0	
Lake Utopia Paper Limited	#	0	0	0	
Irving Personal Care	#	0	0	0	
Irving Tissue	#	0	0	0	
BOD non-compliances, Total	**#**	**0**	**0**	**0**	
by division					
Woodlands	#	0	0	0	
Sawmills	#	0	0	0	
Pulp and paper	#	0	0	0	
Irving Pulp & Paper, Limited	#	0	0	0	
Irving Paper Limited	#	0	0	0	
Lake Utopia Paper Limited	#	0	0	0	
Irving Personal Care	#	0	0	0	
Irving Tissue	#	0	0	0	
TSS non-compliances, Total	**#**	**0**	**0**	**0**	
by division					
Woodlands	#	0	0	0	
Sawmills	#	0	0	0	
Pulp and paper	#	0	0	0	
Irving Pulp & Paper, Limited	#	0	0	0	
Irving Paper Limited	#	0	0	0	
Lake Utopia Paper Limited	#	0	0	0	
Irving Personal Care	#	0	0	0	
Irving Tissue	#	0	0	0	

Data	Measurement	2020	2021	2022	Footnote
Trout toxicity Failures, Total	**#**	**4**	**2**	**1**	
by division					
Woodlands	#	0	0	0	
Sawmills	#	0	0	0	
Pulp and paper	#	4	2	1	
Irving Pulp & Paper, Limited	#	2	0	0	
Irving Paper Limited	#	0	0	0	
Lake Utopia Paper Limited	#	2	2	1	
Irving Personal Care	#	0	0	0	
Irving Tissue	#	0	0	0	
Water Discharge non-compliances, Total	**#**	**4**	**2**	**1**	
by division					
Woodlands	#	0	0	0	
Sawmills	#	0	0	0	
Pulp and paper	#	4	2	1	
Irving Pulp & Paper, Limited	#	2	0	0	
Irving Paper Limited	#	0	0	0	
Lake Utopia Paper Limited	#	2	2	1	
Irving Personal Care	#	0	0	0	
Irving Tissue	#	0	0	0	
ENERGY					
Direct & Indirect Energy Consumption, Total	**Gigajoules**	**29,672,145**	**30,366,345**	**32,295,364**	
by division					
Woodlands	Gigajoules	0	158,630	184,518	a
Sawmills	Gigajoules	3,519,995	4,035,983	4,169,588	
Pulp And Paper	Gigajoules	19,260,219	19,011,666	19,791,999	
Irving Pulp & Paper, Limited	Gigajoules	11,750,122	11,508,674	11,878,895	
Irving Paper Limited	Gigajoules	5,582,466	5,638,266	5,957,346	
Lake Utopia Paper Limited	Gigajoules	1,927,631	1,864,726	1,955,758	
Irving Personal Care	Gigajoules	0	71,740	57,164	c
Irving Tissue	Gigajoules	6,891,931	7,088,325	8,092,094	
Direct Energy Consumption, Total	**Gigajoules**	**22,404,948**	**23,154,783**	**24,579,882**	
by division					
Woodlands	Gigajoules	0	146,435	170,689	a, q
Sawmills	Gigajoules	2,910,345	3,354,040	3,472,730	
Pulp and paper	Gigajoules	14,786,960	14,322,296	15,069,944	
Irving Pulp & Paper, Limited	Gigajoules	11,697,525	11,284,131	11,635,215	
Irving Paper Limited	Gigajoules	1,603,420	1,630,380	1,962,325	
Lake Utopia Paper Limited	Gigajoules	1,486,014	1,407,785	1,472,404	
Irving Personal Care	Gigajoules	0	1,565	1,562	c
Irving Tissue	Gigajoules	4,707,643	5,330,447	5,864,957	d, q

Data	Measurement	2020	2021	2022	Footnote
Indirect Energy Consumption, Total	**Gigajoules**	**7,267,197**	**7,211,562**	**7,715,482**	
by division					
Woodlands	Gigajoules	0	12,195	13,829	a
Sawmills	Gigajoules	609,650	681,944	696,858	
Pulp and paper	Gigajoules	4,473,259	4,689,370	4,722,055	
Irving Pulp & Paper, Limited	Gigajoules	52,596	224,543	243,680	
Irving Paper Limited	Gigajoules	3,979,046	4,007,886	3,995,021	
Lake Utopia Paper Limited	Gigajoules	441,617	456,941	483,354	
Irving Personal Care	Gigajoules	0	70,175	55,603	c
Irving Tissue	Gigajoules	2,184,288	1,757,878	2,227,137	
Electrical Energy Produced on Site, Total	**Gigajoules**	**946,970**	**1,192,200**	**1,151,868**	
by division					
Woodlands	Gigajoules	0	0	0	
Sawmills	Gigajoules	11,737	26,560	9,025	
Pulp and paper	Gigajoules	927,684	735,359	739,218	
Irving Pulp & Paper, Limited	Gigajoules	927,684	735,359	739,218	
Irving Paper Limited	Gigajoules	0	0	0	
Lake Utopia Paper Limited	Gigajoules	0	0	0	
Irving Personal Care	Gigajoules	0	0	0	c
Irving Tissue	Gigajoules	7,549	430,281	403,625	
ENERGY					
Percentage of Energy from Electric grid, Total	**%**	**24.5**	**23.7**	**23.9**	
by division					
Woodlands	%	0.0	7.7	7.5	
Sawmills	%	17.3	16.9	16.7	
Pulp and paper	%	23.2	24.7	23.9	
Irving Pulp & Paper, Limited	%	0.4	2.0	2.1	
Irving Paper Limited	%	71.3	71.1	67.1	
Lake Utopia Paper Limited	%	22.9	24.5	24.7	
Irving Personal Care	%	0.0	97.8	97.3	c
Irving Tissue	%	31.7	24.8	27.5	
Percentage of Energy from Renewable Sources, Total	**%**	**57.3**	**54.8**	**55.8**	a, q
by division					
Woodlands	%	0.0	2.0	2.3	
Sawmills	%	80.6	76.9	67.9	
Pulp and paper	%	67.2	65.7	64.9	
Irving Pulp & Paper, Limited	%	91.0	89.2	88.0	
Irving Paper Limited	%	18.5	19.0	20.1	
Lake Utopia Paper Limited	%	63.4	62.0	61.0	d, q
Irving Personal Care	%	0.0	25.2	29.5	c
Irving Tissue Saint John Mill	%	54.0	54.7	50.8	

Data	Measurement	2020	2021	2022	Footnote
Percentage of Energy from Own Electrical Generation, Total	**%**	**3.2**	**3.9**	**3.6**	
by division					
Woodlands	%	0.0	0.0	0.0	
Sawmills	%	0.3	0.7	0.2	
Pulp and paper	%	4.8	3.9	3.7	
Irving Pulp & Paper, Limited	%	7.9	6.4	6.2	
Irving Paper Limited	%	0.0	0.0	0.0	
Lake Utopia Paper Limited	%	0.0	0.0	0.0	
Irving Personal Care	%	0.0	0.0	0.0	c
Irving Tissue Saint John Mill	%	0.0	0.0	0.0	
ENERGY INTENSITY					
Direct energy consumption intensity					
by divison					
Woodlands	Gigajoules / t product	0.0	0.0	0.0	
Sawmills	Gigajoules / t product	0.7	0.7	0.8	
Pulp and paper	Gigajoules / t product	16.2	16.0	16.9	c
Irving Personal Care	Gigajoules / t product	0.0	0.1	0.1	
Irving Tissue	Gigajoules / t product	15.6	18.1	16.8	
Indirect energy consumption intensity					
by divison					
Woodlands	Gigajoules / t product	0.0	0.0	0.0	
Sawmills	Gigajoules / t product	0.1	0.1	0.2	
Pulp and paper	Gigajoules / t product	4.9	5.2	5.3	
Irving Personal Care	Gigajoules / t product	0.0	3.4	4.0	c
Irving Tissue	Gigajoules / t product	7.3	6.0	6.4	
Direct and indirect energy cosumption intensity					
by divison					
Woodlands	Gigajoules / t product	0.0	0.0	0.0	
Sawmills	Gigajoules / t product	0.8	0.8	0.9	
Pulp and paper	Gigajoules / t product	21.1	21.2	22.2	
Irving Personal Care	Gigajoules / t product	0.0	3.5	4.1	c
Irving Tissue	Gigajoules / t product	22.9	24.1	23.1	

Data	Measurement	2020	2021	2022	Footnote
WASTE					
Total weight of waste generated, Total	**Tonnes**	**243,973**	**253,505**	**279,831**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	120,336	125,246	132,154	
Pulp and paper	Tonnes	103,872	107,887	119,104	
Irving Pulp & Paper, Limited	Tonnes	24,449	22,276	25,369	
Irving Paper Limited	Tonnes	52,764	52,656	55,626	
Lake Utopia Paper Limited	Tonnes	26,659	32,954	38,109	
Irving Personal Care	Tonnes	0	1,153	791	c, q
Irving Tissue	Tonnes	19,765	19,219	27,782	d
Total hazardous waste generated, Total	**Tonnes**	**618**	**474**	**821**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	35	49	59	
Pulp and paper	Tonnes	10	1	161	
Irving Pulp & Paper, Limited	Tonnes	10	1	161	
Irving Paper Limited	Tonnes	0	0	0	
Lake Utopia Paper Limited	Tonnes	0	0	0	
Irving Personal Care	Tonnes	0	0	0	c
Irving Tissue	Tonnes	563	421	439	
Total non-hazardous waste generated, Total	**Tonnes**	**243,365**	**253,033**	**279,172**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	120,301	125,197	132,095	
Pulp and paper	Tonnes	103,862	107,885	118,942	
Irving Pulp & Paper, Limited	Tonnes	24,439	22,275	25,207	
Irving Paper Limited	Tonnes	52,764	52,656	55,626	
Lake Utopia Paper Limited	Tonnes	26,659	32,954	38,109	
Irving Personal Care	Tonnes	0	1,153	791	c
Irving Tissue	Tonnes	19,202	18,798	27,344	d
Total weight of waste sent to landfill, Total	**Tonnes**	**114,137**	**104,266**	**104,239**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	95,388	90,805	93,773	
Pulp and paper	Tonnes	3,640	3,785	4,056	
Irving Pulp & Paper, Limited	Tonnes	503	1,001	1,041	
Irving Paper Limited	Tonnes	476	279	427	
Lake Utopia Paper Limited	Tonnes	2,661	2,506	2,587	
Irving Personal Care	Tonnes	0	841	545	c
Irving Tissue	Tonnes	15,108	8,834	5,866	

Data	Measurement	2020	2021	2022	Footnote
Total weight of waste diverted from disposal, Total	**Tonnes**	**129,228**	**148,767**	**174,933**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	24,913	34,391	38,322	q
Pulp and paper	Tonnes	100,222	104,099	114,887	q
Irving Pulp & Paper, Limited	Tonnes	23,936	21,274	24,166	q
Irving Paper Limited	Tonnes	52,288	52,377	55,199	
Lake Utopia Paper Limited	Tonnes	23,998	30,448	35,522	
Irving Personal Care	Tonnes	0	312	246	c
Irving Tissue	Tonnes	4,094	9,964	21,478	d
Percentage of non-hazardous sent to landfill, Total	**%**	**46.90**	**41.21**	**37.34**	
by division					
Woodlands	%	0.0	0.0	0.0	
Sawmills	%	79.3	72.5	71.0	
Pulp and paper	%	3.5	3.5	3.4	
Irving Pulp & Paper, Limited	%	2.1	4.5	4.1	
Irving Paper Limited	%	0.9	0.5	0.8	
Lake Utopia Paper Limited	%	10.0	7.6	6.8	
Irving Personal Care	%	0.0	72.9	68.8	c
Irving Tissue	%	78.7	47.0	21.5	d
Percentage of non-hazardous waste diverted from disposal, Total	**%**	**53.1**	**58.8**	**62.7**	
by division					
Woodlands	%	0.0	0.0	0.0	
Sawmills	%	20.7	27.5	29.0	
Pulp and paper	%	96.5	96.5	96.6	
Irving Pulp & Paper, Limited	%	97.9	95.5	95.9	
Irving Paper Limited	%	99.1	99.5	99.2	
Lake Utopia Paper Limited	%	90.0	92.4	93.2	
Irving Personal Care	%	0.0	27.1	31.2	c
Irving Tissue	%	21.3	53.0	78.5	d
WASTE INTENSITY					
Total waste weight intensity					
by divison					
Woodlands and Sawmills	kgs / t product	10.4	11.0	12.9	
Woodlands	kgs / t product	0.0	0.0	0.0	
Sawmills	kgs / t product	26.9	26.1	28.6	
Pulp and paper	kgs / t product	113.5	120.2	133.5	
Irving Personal Care	kgs / t product	0.0	55.6	56.5	c
Irving Tissue	kgs / t product	65.6	65.2	79.5	d

Data	Measurement	2020	2021	2022	Footnote
WATER					
Water withdrawn, surface water, Total	**Thousand cubic meters (m^3)**	**62,203**	**64,468**	**65,610**	
Water consumption, Total	**Thousand cubic meters (m^3)**	**62,203**	**64,468**	**65,610**	
by division					
Woodlands	Thousand cubic meters (m^3)	0	0	0	
Sawmills	Thousand cubic meters (m^3)	0	0	0	
Pulp and paper	Thousand cubic meters (m^3)	51,486	53,523	53,074	
Irving Pulp & Paper, Limited	Thousand cubic meters (m^3)	33,470	35,005	33,748	
Irving Paper Limited	Thousand cubic meters (m^3)	12,135	12,302	12,402	
Lake Utopia Paper Limited	Thousand cubic meters (m^3)	5,880	6,217	6,924	
Irving Personal Care	Thousand cubic meters (m^3)	0	0	0	c
Irving Tissue	Thousand cubic meters (m^3)	10,718	10,944	12,536	
Water discharge, Total	**Thousand cubic meters (m^3)**	**64,243**	**66,920**	**69,369**	
by division					
Woodlands	Thousand cubic meters (m^3)	0	0	0	
Sawmills	Thousand cubic meters (m^3)	0	0	0	
Pulp and paper	Thousand cubic meters (m^3)	54,017	56,718	57,675	
Irving Pulp & Paper, Limited	Thousand cubic meters (m^3)	36,237	38,332	38,453	
Irving Paper Limited	Thousand cubic meters (m^3)	11,655	11,910	12,010	
Lake Utopia Paper Limited	Thousand cubic meters (m^3)	6,125	6,476	7,213	
Irving Personal Care	Thousand cubic meters (m^3)	0	0	0	c
Irving Tissue	Thousand cubic meters (m^3)	10,226	10,202	11,694	d
Percent of product that is elemental chlorine-free	**%**	**100%**	**100%**	**100%**	
by division					
Woodlands	%	-	-	-	
Sawmills	%	-	-	-	
Pulp and paper	%	100%	100%	100%	
Irving Personal Care	%	-	-	-	
Irving Tissue	%	100%	100%	100%	
Water discharges BOD, Total	**Tonnes**	**3,372**	**3,421**	**3,856**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	0	0	0	
Pulp and paper	Tonnes	2,777	2,848	2,942	
Irving Pulp & Paper, Limited	Tonnes	1,796	1,850	1,959	
Irving Paper Limited	Tonnes	670	675	689	
Lake Utopia Paper Limited	Tonnes	311	323	295	
Irving Personal Care	Tonnes	0	0	0	
Irving Tissue	Tonnes	595	572	914	

Data	Measurement	2020	2021	2022	Footnote
Water discharges COD, Total	**Tonnes**	**20,843**	**20,851**	**22,806**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	0	0	0	
Pulp and paper	Tonnes	19,839	19,385	21,747	
Irving Pulp & Paper, Limited	Tonnes	8,563	8,344	8,774	
Irving Paper Limited	Tonnes	2,441	1,865	2,338	
Lake Utopia Paper Limited	Tonnes	8,835	9,176	10,635	
Irving Personal Care	Tonnes	0	0	0	
Irving Tissue	Tonnes	1,003	1,466	1,058	
Water discharges TSS, Total	**Tonnes**	**7,442**	**7,132**	**7,312**	
by division					
Woodlands	Tonnes	0	0	0	
Sawmills	Tonnes	0	0	0	
Pulp and paper	Tonnes	5,878	5,932	5,804	
Irving Pulp & Paper, Limited	Tonnes	2,133	2,186	2,175	
Irving Paper Limited	Tonnes	3,333	3,350	3,251	
Lake Utopia Paper Limited	Tonnes	412	395	378	
Irving Personal Care	Tonnes	0	0	0	
Irving Tissue	Tonnes	1,564	1,200	1,508	
AOX emissions, Total	**Kg**	**81,207**	**56,601**	**53,880**	
by division					
Woodlands	Kg	0	0	0	
Sawmills	Kg	0	0	0	
Pulp and paper	Kg	81,207	56,601	53,880	
Irving Pulp & Paper, Limited	Kg	81,207	56,601	53,880	
Irving Paper Limited	Kg	0	0	0	
Lake Utopia Paper Limited	Kg	0	0	0	
Irving Personal Care	Kg	0	0	0	
Irving Tissue	Kg	0	0	0	
Significant spills, Total	**#**	**0**	**0**	**0**	
by division					
Woodlands	#	0	0	0	
Sawmills	#	0	0	0	
Pulp and paper	#	0	0	0	
Irving Pulp & Paper, Limited	#	0	0	0	
Irving Paper Limited	#	0	0	0	
Lake Utopia Paper Limited	#	0	0	0	
Irving Personal Care	#	0	0	0	
Irving Tissue	#	0	0	0	

Data	Measurement	2020	2021	2022	Footnote
WATER INTENSITY					
Water consumption intensity					
by division					
Woodlands	Cubic meters (m^3)/t product	0.0	0.0	0.0	
Sawmills	Cubic meters (m^3)/t product	0.0	0.0	0.0	
Pulp and paper	Cubic meters (m^3)/t product	56.3	59.6	59.5	
Irving Pulp & Paper, Limited	Cubic meters (m^3)/t product	96.6	103.5	105.4	
Irving Paper Limited	Cubic meters (m^3)/t product	31.8	31.6	31.3	
Lake Utopia Paper Limited	Cubic meters (m^3)/t product	31.5	36.5	39.4	
Irving Personal Care	Cubic meters (m^3)/t product	0.0	0.0	0.0	
Irving Tissue	Cubic meters (m^3)/t product	35.6	37.1	35.9	
Water discharge intensity					
by division					
Woodlands	Cubic meters (m^3)/t product	0.0	0.0	0.0	
Sawmills	Cubic meters (m^3)/t product	0.0	0.0	0.0	
Pulp and paper	Cubic meters (m^3)/t product	59.0	63.2	64.6	
Irving Pulp & Paper, Limited	Cubic meters (m^3)/t product	104.5	113.3	120.0	
Irving Paper Limited	Cubic meters (m^3)/t product	30.6	30.6	30.3	
Lake Utopia Paper Limited	Cubic meters (m^3)/t product	32.8	38.0	41.1	
Irving Personal Care	Cubic meters (m^3)/t product	0.0	0.0	0.0	
Irving Tissue	Cubic meters (m^3)/t product	33.9	34.6	33.5	
Water discharges BOD intensity					
by division					
Woodlands	kg/t product	0.0	0.0	0.0	
Sawmills	kg/t product	0.0	0.0	0.0	
Pulp and paper	kg/t product	3.0	3.2	3.3	
Irving Pulp & Paper, Limited	kg/t product	5.2	5.5	6.1	
Irving Paper Limited	kg/t product	1.8	1.7	1.7	
Lake Utopia Paper Limited	kg/t product	1.7	1.9	1.7	
Irving Personal Care	kg/t product	0.0	0.0	0.0	
Irving Tissue	kg/t product	2.0	1.9	2.6	
Water discharges COD intensity					
by division					
Woodlands	kg/t product	0.0	0.0	0.0	
Sawmills	kg/t product	0.0	0.0	0.0	
Pulp and paper	kg/t product	21.7	21.6	24.4	
Irving Pulp & Paper, Limited	kg/t product	24.7	24.7	27.4	
Irving Paper Limited	kg/t product	6.4	4.8	5.9	
Lake Utopia Paper Limited	kg/t product	47.3	53.9	60.6	
Irving Personal Care	kg/t product	0.0	0.0	0.0	
Irving Tissue	kg/t product	3.3	5.0	3.0	

Data	Measurement	2020	2021	2022	Footnote
Water discharges TSS intensity					
by division					
Woodlands	kg/t product	0.0	0.0	0.0	
Sawmills	kg/t product	0.0	0.0	0.0	
Pulp and paper	kg/t product	6.4	6.6	6.5	
Irving Pulp & Paper, Limited	kg/t product	6.2	6.5	6.8	
Irving Paper Limited	kg/t product	8.7	8.6	8.2	
Lake Utopia Paper Limited	kg/t product	2.2	2.3	2.2	
Irving Personal Care	kg/t product	0.0	0.0	0.0	
Irving Tissue	kg/t product	5.2	4.1	4.3	
AOX emissions intensity					
by division					
Woodlands	g/t product	0.0	0.0	0.0	
Sawmills	g/t product	0.0	0.0	0.0	
Pulp and paper	g/t product	88.8	63.1	60.4	
Irving Pulp & Paper, Limited	g/t product	234.3	167.4	168.2	
Irving Paper Limited	g/t product	0.0	0.0	0.0	
Lake Utopia Paper Limited	g/t product	0.0	0.0	0.0	
Irving Personal Care	g/t product	0.0	0.0	0.0	
Irving Tissue	g/t product	0.0	0.0	0.0	
MATERIAL					
Volume of input materials, Total	**tonnes**	**6,413,710**	**6,542,883**	**6,471,238**	
by division					
Woodlands	tonnes	0	0	0	
Sawmills	tonnes	4,551,880	4,732,064	4,623,411	
Pulp and paper	tonnes	1,443,464	1,394,676	1,377,436	
Irving Pulp & Paper, Limited	tonnes	783,528	758,480	715,734	
Irving Paper Limited	tonnes	436,759	437,182	455,170	
Lake Utopia Paper Limited	tonnes	223,176	199,014	206,532	
Irving Personal Care	tonnes	0	20,732	13,993	
Irving Tissue	tonnes	418,366	395,411	456,398	
Volume of input materials intensity, Total	**tonnes materials/tonne product**	**0.5**	**0.5**	**0.6**	
by division					
Woodlands	tonnes materials/tonne product	0.0	0.0	0.0	
Sawmills	tonnes materials/tonne product	1.0	1.0	1.0	
Pulp and paper	tonnes materials/tonne product	1.6	1.6	1.5	
Irving Pulp & Paper, Limited	tonnes materials/tonne product	2.3	2.2	2.2	
Irving Paper Limited	tonnes materials/tonne product	1.1	1.1	1.1	
Lake Utopia Paper Limited	tonnes materials/tonne product	1.2	1.2	1.2	
Irving Personal Care	tonnes materials/tonne product	0.0	1.0	1.0	
Irving Tissue	tonnes materials/tonne product	1.2	1.2	1.2	

Data	Measurement	2020	2021	2022	Footnote
Volume of recycled input materials, Total	**tonnes**	**55,567**	**49,648**	**51,735**	
by division					
Woodlands	tonnes	0	0	0	
Sawmills	tonnes	0	0	0	
Pulp and paper	tonnes	55,567	49,648	51,735	
Irving Pulp & Paper, Limited	tonnes	0	0	0	
Irving Paper Limited	tonnes	0	0	0	
Lake Utopia Paper Limited	tonnes	55,567	49,648	51,735	
Irving Personal Care	tonnes	0	0	0	
Irving Tissue	tonnes	0	0	0	
Product with at least 25% post-consumer recycled content					
by division					
Woodlands	%	0.0	0.0	0.0	
Sawmills	%	0.0	0.0	0.0	
Pulp and paper	%	0.0	0.0	0.0	
Irving Pulp & Paper, Limited	%	0.0	0.0	0.0	
Irving Paper Limited	%	0.0	0.0	0.0	
Lake Utopia Paper Limited	%	69.0	67.5	64.0	
Irving Personal Care	%	0.0	0.0	0.0	
Irving Tissue	%	0.0	0.0	0.0	
Wood fiber sourced and harvested					
Total wood fiber harvested and procured	**Tonnes**	**7,133,188**	**6,566,093**	**5,612,930**	
Trees planted	# of Seedlings	12,334,779	14,898,021	18,754,777	
Recycled input materials/fibre procured	tonnes	55,567	49,648	51,735	
LAND CERTIFICATIONS					
Percentage of resource holdings SFI certified	%	100	100	100	
Percentage of resource holdings ISO14001 certified	%	100	100	100	
Percentage of resource holdings FSC certified	%	20	20	20	
BIODIVERSITY CONSERVATION					
Land under Irving Management	**Hectares**	**2,389,974**	**2,377,048**	**2,377,640**	
Area of freehold land, Total	**Hectares**	**1,327,503**	**1,314,577**	**1,315,303**	
Area of JDI freehold land CAN	Hectares	801,723	796,321	796,095	
Area of JDI freehold land US	Hectares	525,780	518,256	519,208	
Area of crown land, Total	**Hectares**	**1,062,471**	**1,062,471**	**1,062,337**	
Area of crown land managed, CAN	Hectares	1,062,471	1,062,471	1,062,337	
Conservation areas on JDI land	Hectares	253,894	242,643	247,913	
Conservation areas on JDI land	%	19	18	19	
Conservation areas on Crown land	Hectares	318,600	314,680	281,339	h

Data	Measurement	2020	2021	2022	Footnote
Conservation areas on Crown land	%	30	30	26	h
Total conservation area managed	**Hectares**	**572,494**	**557,323**	**529,252**	
Total conservation area managed	**%**	**24**	**23**	**22**	
Total unique areas managed	# of unique areas	1,739	1,894	2,001	
Number of species at risk within operational areas	#	44	35	36	
SILVICULTURE AND OTHER FORESTRY METRICS					
Average Harvest Opening Size Freehold	Hectares	17	19	16	
Average Harvest Opening Size Crown	Hectares	23	29	20	
Actual Harvest Level Freehold	m3/ha	2.3	2.2	2.2	
Actual Harvest Level Crown	m3/ha	1.7	1.6	1.6	
Sustainable Harvest Level Freehold	m3/ha	2.5	2.4	2.4	
Sustainable Harvest Level Crown	m3/ha	1.9	2.0	2.1	
Area Deforested Per Year	%/yr	0.01%	0.01%	0.01%	
Number of regulatory watercourse crossing violations	#	0	0	0	
Internal non-conformances (less safety and public complaints)	#	364	318	261	
DNR non-conformances	#	0	0	0	
FSC non-conformances	#	0	0	0	
SFI non-conformances	#	0	0	0	

SOCIAL

EMPLOYMENT

Full-time equivalent employees, Total	**FTE**	**4,455**	**4,631**	**4,849**	**i**
by division					
Woodlands	FTE	540	447	554	
Sawmills	FTE	1,522	1,578	1,657	
Pulp and paper	FTE	920	916	924	
Irving Personal Care	FTE	0	173	155	
Irving Tissue	FTE	1,473	1,517	1,559	
Permanent employees by gender, Total	**#**	**4,057**	**4,574**	**4,781**	
Total number of female permanent employees, Total	#	475	612	659	
Total number of male permanent employees, Total	#	3,519	3,859	3,968	
Total number of permanent employees with an unspecified gender, Total	#	63	103	154	
Temporary employees by gender, Total	**#**	**28**	**37**	**30**	
Temporary employees, Female	#	3	9	4	
Temporary employees, Male	#	21	26	25	
Temporary employees, Gender unspecified	#	4	2	1	
by region					
Permanent employees, CAN	#	3,095	3,478	3,614	
Temporary employees, CAN	#	23	33	28	
Permanent employees , US	#	962	1,095	1,166	
Temporary employees, US	#	3	4	2	
Full-time employees by gender, Total	**#**	**4,034**	**4,561**	**4,767**	
Total number of female full-time employees, Total	#	466	610	656	
Total number of male full-time employees, Total	#	3,501	3,847	3,957	
Total number of full-time employees with an unspecified gender, Total	#	67	104	154	
Part-time employees by gender, Total	#	51	50	44	
Total number of female part-time employees, Total	#	12	11	7	
Total number of male part-time employees, Total	#	39	38	36	
Total number of part-time employees with an unspecified gender, Total	#	0	1	1	
Employee Engagement, Total	**%**	**82**	**80**	**80**	
by division					
Woodlands	%	90	88	86	
Sawmills	%	79	78	80	
Pulp and paper	%	77	78	75	
Irving Pulp & Paper, Limited	%	63	73	68	
Irving Paper Limited	%	83	83	78	
Lake Utopia Paper Limited	%	81	72	75	
Irving Forest Services	%	0	87	89	
Irving Personal Care	%	0	82	83	
Irving Tissue	%	86	81	82	
Total number of new employee hires	#	491	1,124	1,252	
Total rate of new employee hires	%	10	24	26	
Total employee turnover number	#	457	850	943	
Total employee turnover rate	%	10	18	20	
OCCUPATIONAL HEALTH & SAFETY					
Number of fatalities that occurred in a location, Totals	**#**	**0**	**0**	**0**	
by division					
Woodlands	#	0	0	0	
Sawmills	#	0	0	0	
Pulp and paper	#	0	0	0	
Irving Pulp & Paper, Limited	#	0	0	0	
Irving Paper Limited	#	0	0	0	
Lake Utopia Paper Limited	#	0	0	0	
Irving Forest Services	#	0	0	0	
Irving Personal Care	#	0	0	0	

Data	Measurement	2020	2021	2022	Footnote
Irving Tissue	#	0	0	0	
Head office	#	0	0	0	
Plant Sites	#	0	0	0	
Number of critical injuries that occurred in a location, Totals	**#**	**9**	**7**	**5**	
by division					
Woodlands	#	0	1	0	
Sawmills	#	6	3	3	
Pulp and paper	#	2	1	0	
Irving Pulp & Paper, Limited	#	0	1	0	
Irving Paper Limited	#	1	0	0	
Lake Utopia Paper Limited	#	1	0	0	
Irving Forest Services	#	0	0	0	
Irving Personal Care	#	0	0	0	
Irving Tissue	#	1	2	2	
Head office	#	0	0	0	
Plant Sites	#	1	2	2	
Rate of critical injuries that occurred in a location, Totals	**Rate**	**0.18**	**0.13**	**0.10**	
by division					
Woodlands	Rate	0.00	0.15	0.00	
Sawmills	Rate	0.34	0.17	0.16	
Pulp and paper	Rate	0.22	0.10	0.00	
Irving Pulp & Paper, Limited	Rate	0.00	0.26	0.00	
Irving Paper Limited	Rate	0.32	0.00	0.00	
Lake Utopia Paper Limited	Rate	0.66	0.00	0.00	
Irving Forest Services	Rate	0.00	0.00	0.00	
Irving Personal Care	Rate	0.00	0.00	0.00	
Irving Tissue	Rate	0.07	0.13	0.13	
Head office	Rate	0.00	0.00	0.00	
Plant Sites	Rate	0.08	0.14	0.14	
Number of Recordable injuries that occurred in a location, Totals	**#**	**114**	**109**	**107**	j
by division					
Woodlands	#	9	7	9	
Sawmills	#	63	67	59	
Pulp and paper	#	20	11	12	
Irving Pulp & Paper, Limited	#	3	3	4	
Irving Paper Limited	#	8	5	7	
Lake Utopia Paper Limited	#	8	3	1	
Irving Forest Services	#	1	0	0	
Irving Personal Care	#	1	3	1	
Irving Tissue	#	21	21	26	

Data	Measurement	2020	2021	2022	Footnote
Head office	#	0	0	1	
Plant Sites	#	21	21	25	
Rate of Recordable injuries that occurred in a location, Totals	**Rate**	**2.3**	**2.1**	**2.0**	j
by division					
Woodlands	Rate	1.5	1.1	1.2	
Sawmills	Rate	3.6	3.7	3.2	
Pulp and paper	Rate	2.2	1.2	1.2	
Irving Pulp & Paper, Limited	Rate	0.8	0.8	1.0	
Irving Paper Limited	Rate	2.6	1.6	2.2	
Lake Utopia Paper Limited	Rate	5.3	1.9	0.7	
Irving Forest Services	Rate	1.0	0.0	0.0	
Irving Personal Care	Rate	0.6	1.6	0.6	
Irving Tissue	Rate	1.4	1.3	1.6	
Head office	Rate	0.0	0.0	0.5	
Plant Sites	Rate	1.6	1.5	1.8	
Number of Lost Time injuries that occurred in a location (students are included), Totals	**#**	**54**	**42**	**36**	j
by division					
Woodlands	#	3	2	3	
Sawmills	#	30	24	26	
Pulp and paper	#	10	7	4	
Irving Pulp & Paper, Limited	#	2	1	2	
Irving Paper Limited	#	5	3	2	
Lake Utopia Paper Limited	#	3	3	0	
Irving Forest Services	#	0	0	0	
Irving Personal Care	#	1	0	1	
Irving Tissue	#	10	9	2	
Head office	#	0	0	1	
Plant Sites	#	10	9	1	
Rate of Lost-Time injuries that occurred in a location (students are included), Totals	**Rate**	**1.1**	**0.8**	**0.7**	j
by division					
Woodlands	Rate	0.5	0.3	0.4	
Sawmills	Rate	1.7	1.3	1.4	
Pulp and paper	Rate	1.1	0.7	0.4	
Irving Pulp & Paper, Limited	Rate	0.6	0.3	0.5	
Irving Paper Limited	Rate	1.6	1.0	0.6	
Lake Utopia Paper Limited	Rate	2.0	1.9	0.0	
Irving Forest Services	Rate	0.0	0.0	0.0	
Irving Personal Care	Rate	0.6	0.0	0.6	

Data	Measurement	2020	2021	2022	Footnote
Irving Tissue	Rate	0.7	0.6	0.1	
Head office	Rate	0.0	0.0	0.5	
Plant Sites	Rate	0.8	0.6	0.0	
Average of % of Employees Reporting a Hazard ID in a Financial Period, Totals	**Rate**	**31.4**	**44.5**	**54.9**	
by division					
Woodlands	Rate	35.5	76.9	93.3	
Sawmills	Rate	61.0	85.1	100.0	
Pulp and paper	Rate	1.6	4.3	6.9	
Irving Pulp & Paper, Limited	Rate	0.0	2.5	6.5	
Irving Paper Limited	Rate	0.0	1.2	1.5	
Lake Utopia Paper Limited	Rate	0.0	17.0	17.9	
Irving Forest Services	Rate	0.0	2.8	8.5	
Irving Personal Care	Rate	0.0	16.7	21.8	
Irving Tissue	Rate	18.0	20.0	25.1	
Head office	Rate	0.0	0.1	0.0	
Plant Sites	Rate	0.0	23.6	29.7	
TRAINING AND EDUCATION					
Number of employees participating in the Leadership Development Training	#	428	944	789	
Hours of Leadership Development Training	hours	3,388	4,949	6,681	
Spend on Leadership Development Training	$ CAD	45,825	188,293	328,200	
DIVERSITY & INCLUSION					
by gender					
Percentage of women in executive positions	%	4.8	7.3	11.6	
Proportion of female employees, Total	%	13.3	13.0	13.8	
Proportion of male employees, Total	%	85.0	84.0	83.0	
Proportion of employees with an unspecified gender, Total	%	1.7	2.0	3.2	
by age group					
Proportion of employees that are less than 30 years old, Total	%	18.2	19.0	18.5	
Proportion of employees that are 30-50 years old, Total	%	49.1	32.0	50.8	
Proportion of employees that are over 50 years old, Total	%	32.7	49.0	30.7	
ECONOMIC					
PRODUCTION					
Production, Total	tonnes	12,888,018	12,607,832	11,505,905	
by division					
Woodlands	tonnes	7,133,188	6,566,093	5,612,930	
Woodlands harvested	tonnes	4,966,807	4,815,992	4,329,590	
Woodlands purchased	tonnes	2,166,381	1,750,101	1,283,340	
Sawmills	tonnes	4,476,666	4,797,260	4,621,070	
Sawmills, Lumber	tonnes	1,493,039	1,488,878	1,388,040	
Sawmills, Lumber	MFBM	1,139,636	1,068,477	1,064,677	
Sawmills, Residuals	tonnes	2,867,092	3,156,864	3,072,946	
Sawmills, Pellets	tonnes	102,483	130,201	138,850	k
Sawmills, Peat moss and soils production	tonnes	14,053	21,316	21,234	k
Pulp and paper	tonnes	914,809	897,420	892,478	
Irving Pulp & Paper, Limited	tonnes	346,611	338,210	320,328	
Irving Paper Limited	tonnes	381,266	388,974	396,564	
Lake Utopia Paper	tonnes	186,932	170,236	175,586	
Irving Personal Care	tonnes	22,464	20,732	13,993	c
Irving Tissue - Converted	tonnes	340,891	326,327	365,435	
Irving Tissue - Paper	tonnes	301,239	294,667	349,579	
ECONOMIC PERFORMANCE					
Capital Investment, USD, Total	**$ millions USD**	**478**	**501**	**270**	
by division					
Woodlands	$ millions USD	16	25	41	
Sawmills	$ millions USD	49	66	80	
Pulp and Paper	$ millions USD	116	149	121	
Irving Tissue & Irving Personal Care	$ millions USD	296	259	24	
Head Office	$ millions USD	1	2	2	
Spend on local suppliers, USD, Total	**$ millions USD**	**1,215**	**1,532**	**1,667**	
by division					
Woodlands	$ millions USD	325	394	389	
Sawmills	$ millions USD	216	280	342	
Pulp and Paper	$ millions USD	324	422	424	
Irving Tissue & Irving Personal Care	$ millions USD	309	392	481	
Head Office	$ millions USD	41	44	32	
WAGES AND EMPLOYEE BENEFIT					
Total spend on employee wages and benefits	$ millions USD	308	345	362	l
Direct, Indirect and Induced jobs	FTE	16,479	17,814	18,005	
Employment Income from Direct, indirect and Induced jobs, Including impact of payments to Forestry contractors	$ millions USD	879	969	1,025	
Median total compensation for female employees, CAN	CAD/year	56,000	60,000	60,881	l,o
Median total compensation for male employees, CAN	CAD/year	70,674	74,420	75,422	l,o
Median total compensation for employees with an unspecified gender, CAN	CAD/year	69,482	65,000	66,421	l,o
Median total compensation for female employees, US	USD/year	48,959	49,887	57,013	l,o

Data	Measurement	2020	2021	2022	Footnote
Median total compensation for male employees, US	USD/year	56,805	58,793	62,686	l,o
Median total compensation for employees with an unspecified gender, US	USD/year	42,916	0	64,740	l,o
Ratio of median salary women to men, CAN	-	0.79	0.81	0.81	
Ratio of median salary women to men, US	-	0.86	0.85	0.91	
Defined contribution plan percentage of compensation contributed by employee, Total	**%**	**5.1**	**5.1**	**5.1**	
by division					
Woodlands	%	5.0	5.0	5.0	
Sawmills	%	5.0	5.0	5.0	
Pulp and paper	%	5.5	5.5	5.5	
Irving Personal Care	%	0.0	5.0	5.0	
Irving Tissue	%	5.0	5.0	5.0	
Defined contribution plan percentage of compensation contributed by employer, Total	**%**	**5.1**	**5.1**	**5.1**	
by division					
Woodlands	%	5.0	5.0	5.0	
Sawmills	%	5.0	5.0	5.0	
Pulp and paper	%	5.5	5.5	5.5	
Irving Personal Care	%	0.0	5.0	5.0	
Irving Tissue	%	5.0	5.0	5.0	
Median entry level wage ratio for female employees, Total, CAN	-	1.6	1.7	1.5	l,o
Median entry level wage ratio for male employees, Total, CAN	-	1.6	1.7	1.5	l,o
Median entry level wage ratio for employees with an unspecified gender, Total, CAN	-	2.1	2.1	1.6	l,o
Median entry level wage ratio for female employees, Total, US	-	1.6	2.5	3.1	l,o
Median entry level wage ratio for male employees, Total, US	-	1.7	2.5	2.8	l,o
Median entry level wage ratio for employees with an unspecified gender, Total, US	-	2.3	0.0	2.0	l,o
GOVERNANCE					
Number of countries	#	2	2	2	
Number of facilities, Total	**#**	**22**	**23**	**23**	
by division					
Woodlands	#	0	0	0	
Sawmills	#	12	12	12	
Pulp and paper	#	3	3	3	

Data	Measurement	2020	2021	2022	Footnote
Irving Personal Care	#	0	1	1	c
Irving Tissue	#	5	5	5	
Corporate administration	#	2	2	2	
Percentage of total employees covered by collective bargaining agreements	%	43	40	37	
Substantiated complaints from outside parties regarding breach of customer privacy and loss of customer data	#	0	0	0	
Complaints from regulatory bodies regarding breach of customer privacy and loss of customer data	#	0	0	0	
Total number of identified leaks, thefts, or losses of customer data.	#	0	0	0	
Corporate directors that received communication on the organization's anti-corruption policies and procedures, Total	**%**	**100**	**100**	**100**	
Number of legal actions pending or completed during the reporting period regarding anti-competitive behavior and violations of anti-trust and monopoly legislation or corruption in which the organization has been identified as a participant.	#	0	0	0	
OTHER					
University and college partnerships	#	21	21	19	
Community based partnerships	#	119	119	136	
Outdoor associations	#	13	12	12	
Motorized Recreation	#	2	3	4	
Stakeholder based group Partnerships	#	53	55	54	
Non Government Organizations	#	13	13	13	
Government organizations	#	5	5	5	
Fishing and Hunting Clubs	#	9	9	9	
Industry Associations	#	26	26	27	
# of Partner meetings	#	411	520	365	
New Partners	#	4	5	4	
Scholarships	CAD/year	0	95,250	147,442	m
Stakeholder/Social media presence	# of followers	67,198	16,000	35,850	n
Stakeholder/Social media engagement	# of Posts	2,267	576	657	n
Stakeholder/Social media engagement	# of Engagements	348,854	66,870	51,497	n
Charitable Donations	CAD/year	3,045,286	3,047,821	1,683,558	p

ENDNOTES
and 2022 Restatements

a. Woodlands is reporting GHG emissions independently in 2021 and 2022. A portion of Woodlands GHG emissions were reported under the Sawmills Division in previous years. Woodlands/Sawmills emissions will be reported for year over year comparison purposes in addition to the new independent Woodlands and Sawmills disclosure.

b. Chipman bark boiler offline for repair for 2022, used oil boiler in its place. Expect significant Scope 1 and 2 emissions reductions for this site in future years.

c. Irving Personal Care (IPC) added to scope of Forest Supply Chain in 2021. Was not considered part of supply chain in 2020.

d. Second tissue machine in Macon, GA had first full year of operations in 2022.

e. Scope 3 detail by mill not available in 2020.

f. Net carbon footprint includes Freehold land removal only.

g. Volatile Organic Compound reporting was added in 2021 to align to SASB reporting requirements.

h. Total conservation forest area was overstated in past years due to inclusion of draft conservation forest areas in reporting. Only areas with that have been formally established included this year.

i. Full Time Equivalent (FTE) employees was calculated using a new standard definition in 2021. Human Resources has developed standard definitions for all metrics and workflows to calculate metrics to improve consistency in future years.

j. Safety metrics restated for 2020 and 2021. See page 34 for detailed explanation. No assurance received on 2020 or 2021 re-stated figure.

k. Production was used to calculate intensity metrics in 2021 and 2022. 2020 for comparison only.

l. Standardized definitions and workflows were defined in 2021 to calculate payroll related metrics to improve consistency and reproduceable results.

m. Standardized definitions and workflows were defined in 2021 to calculate donations and scholarships to improve consistency and reproduceable results. Donations and scholarships from the JDI Forest Supply Chain only.

n. All JDI reported in 2020. Only Woodlands reported in 2021 and 2022.

o. Median wage information is an aggregate of multiple factors including gender and job type. This metrics is not intended for inference of wages paid to different genders in the same job type.

p. A spending shift due to the Covid-19 pandemic meant more funds allocated to charitable donations instead of event sponsorship in 2020 and 2021.

q. Conversion or methodology error corrected from 2021.

r. Methodology, conversion or correction from 2020.

s. See page 89 for explanation of Restatement of Transfers to Harvested Wood Products

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