



**WOODLANDS**  
SINCE 1882

# 2021

The background of the lower half of the page is a high-angle, aerial photograph of a vast, dense forest. The forest covers rolling hills and valleys, with varying shades of green indicating different types of trees and vegetation. In the distance, more hills are visible under a sky filled with soft, grey clouds. The overall scene conveys a sense of natural beauty and environmental stewardship.

## STATE OF THE FOREST REPORT



# A YEAR LIKE NO OTHER

## 2021 HIGHLIGHTS & KEY STATISTICS

**\$22 MILLION**

IN INVESTMENTS IN 2021  
(CAD)

**\$435 MILLION**

SPENT ON LOCAL SUPPLIERS IN 2021  
(CAD)

**88%**

Overall Woodlands  
Engagement  
Score – Employee  
Engagement Survey

**4,816,044**

Tonnes Harvested

**1,750,101**

Tonnes Purchased

OVER 1,500 PEOPLE  
MAKING IT HAPPEN



**447**

Full Time Employees



**201**

Students



**76**

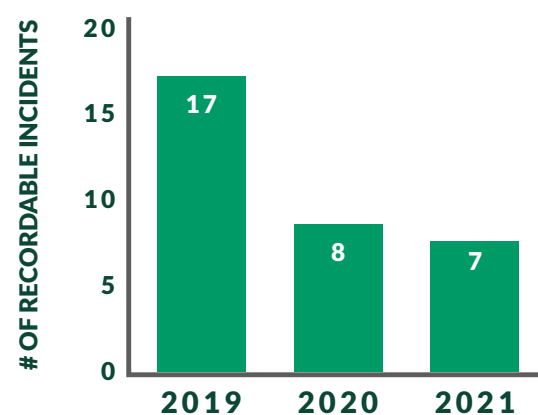
International Recruits



**800 +**

Operators & Truck Drivers

### HEALTH & SAFETY



### # OF LOST TIME INJURIES

<b>7</b>	<b>2</b>	<b>2</b>
2019	2020	2021



WATCH OUR STORY



LEARN ABOUT  
OUR FOOTPRINT



2021 IN REVIEW

Covid-19 continued to impact our business and the world, but despite this, our team was able to stay healthy, cut the wood we needed to feed our mills, and supply our customers. We leveraged online meetings and digital brand initiatives to reach a wide audience and were able to thrive in many ways.

We saw advances in our trucking and harvesting technology to maximize productivity and lessen climate impact. We made partnerships with and donated to local clubs to ensure our communities could discover the gift of nature. We welcomed 76 newcomers and some of their families from seven countries around the world to settle in New Brunswick, and employed over 1,500 local contractors and employees to support our business. We planted over 15 million trees, and declared the Forest Supply Chain, of which we are a part, carbon neutral through to the end of 2021. Throughout all these achievements, we kept our minds on continuous improvement and working hard to be better every day. Our performance-driven team is what enables us to better serve our customers and our communities.

This report shows our dedication to economic performance and how that commitment coincides with social responsibility and community support.



Erika Popika, Forest Technician



Anil Gill, Tree Planter



Calvin Munn, Owner of CWM Logging Ltd.



[irtingwoodlands.com](https://www.irtingwoodlands.com)

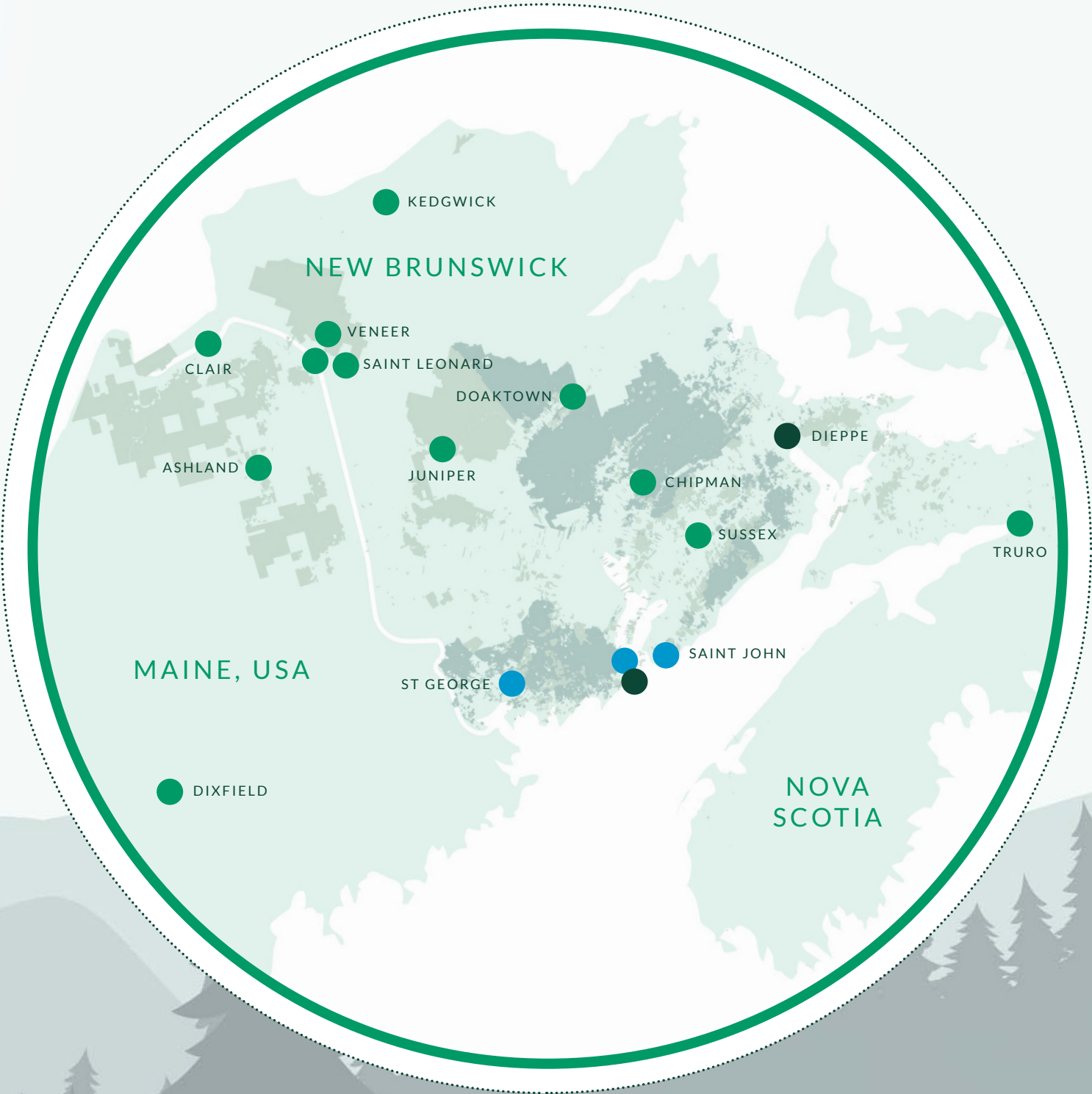


# MAP OF OPERATIONS



## LEGEND

- WOODLANDS FREEHOLD LAND
- CROWN LAND
- PULP AND PAPER
- TISSUE
- SAWMILL DIVISION  
(including Pellet Plant and Juniper Organics)

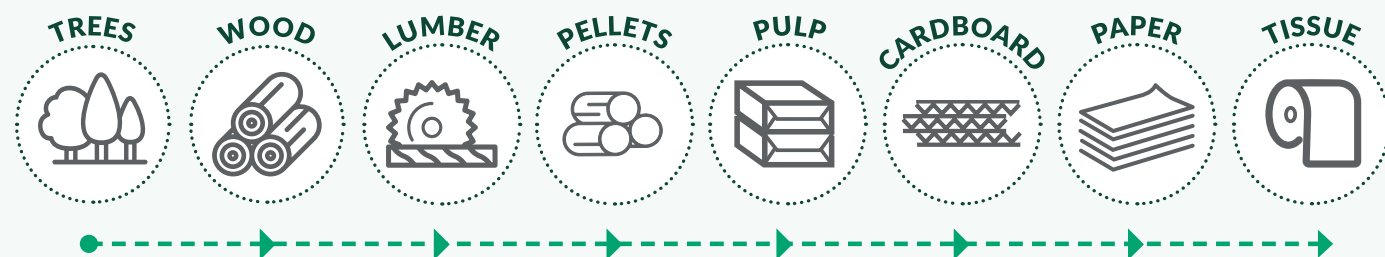




# OUR CARBON FOOTPRINT

GROWING FORESTS.  
MORE VOLUME. MORE  
CARBON REMOVED.

## OUR FOREST SUPPLY CHAIN



Our long-term forest management practices, tree improvement programs and commitment to tree planting and producing products that store carbon result in a net removal of carbon across our Forest Supply Chain.

### Scope 1,2,3 Emissions

**1,715,000**  
MTonnes CO<sub>2</sub>e

### Removals

**2,335,000**  
MTonnes CO<sub>2</sub>e  
Forest Growth

+

**588,000**  
MTonnes CO<sub>2</sub>e  
Harvested Wood Products

=

**WE REMOVE MORE CARBON THAN WE EMIT!**

**(1,208,000)**  
MTonnes CO<sub>2</sub>e

Read the full report



[JDირვინგსSUSTAINABILITY.COM](https://jdირვინგსustainability.com)

The carbon footprint of the Forest Supply Chain for calendar year 2020 has been calculated in accordance with international standard PAS2060:2014. KPMG, an independent third-party, has verified this claim to a limited assurance standard.

# 45 YEARS OF GROWING THE BEST TREES

ONE OF THE  
LARGEST TREE  
IMPROVEMENT  
PROGRAMS IN  
CANADA

## OUR SEEDLINGS ARE:



Well-adapted



Fast Growing



High Quality



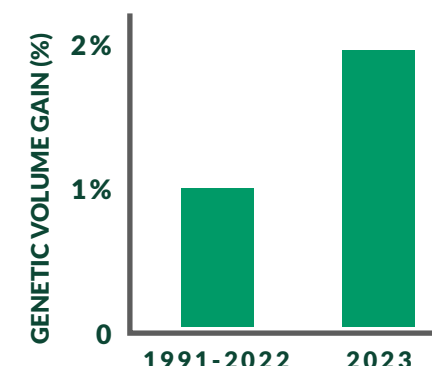
Pest-resistant



Genetically Diverse

### Driving Increased Tree Improvement

Leveraging technology and research to improve genetic volume gain by 2% each year.



At our seed orchard in Parkindale, NB, we collect cones from top-performing trees to cross-pollinate and create better trees for the next generation!



Parkindale Seed Orchard, Parkindale, NB



Jesus Jimenez, Lab Manager, Maritime Innovation Ltd.

Our team at Maritime Innovation Limited patented world first techniques to create new generations of pest-resistant trees by discovering a native fungi that provides natural protection from pests. We've treated over 170+ million seedlings with this fungi to date, resulting in an:



Increased natural tolerance to insects and disease



Healthier, stronger trees



# WORLD-CLASS FOREST MANAGEMENT

INVESTING IN TODAY FOR FUTURE GENERATIONS



### Site Preparation

12,569 HA  
31,058 AC



### Tree Planting

7,856 HA  
19,412 AC



### Early Competition Control

21,568 HA  
53,294 AC



### Plantation Cleaning

10,279 HA  
25,400 AC



### Pre-Commercial Thinning

927 HA  
2,291 AC

15,368,438

SEEDLINGS PLANTED IN 2021

12,693,827 SEEDLINGS PLANTED IN 2020



Jonathan Hoogerwerf, Tree Planter

\$21 MILLION

SPENT ON SILVICULTURE INVESTMENTS IN 2021 (CAD)

\$9.6 MILLION

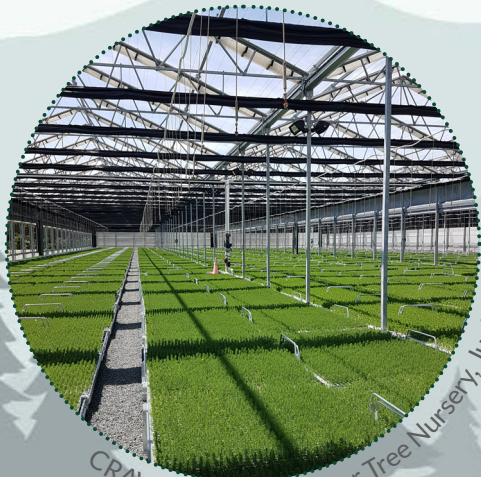
(FROM TOTAL \$21 MILLION SILVICULTURE INVESTMENTS)

PAID TO SILVICULTURE CONTRACTORS IN 2021 (CAD)



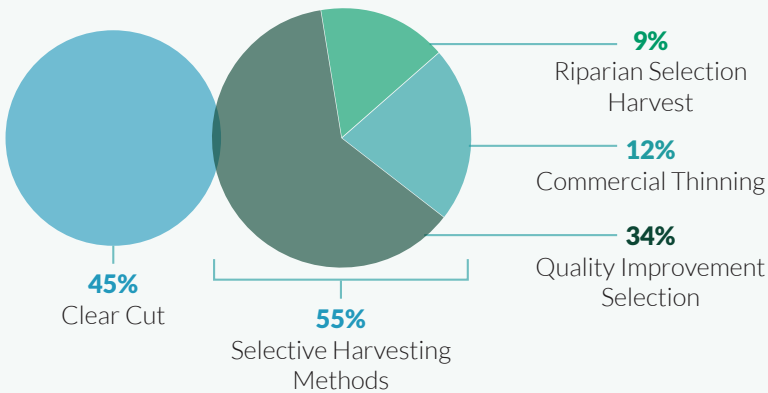
### 2021 INVESTMENTS

- 5945 sq m (64,000 sq ft) retractable roof greenhouse system.
- It can hold up to 3 million seedlings at one time.
- Completed in 2021 - we are investing in expansion.



CRAVO A-Frame, Juniper Tree Nursery, Juniper, NB

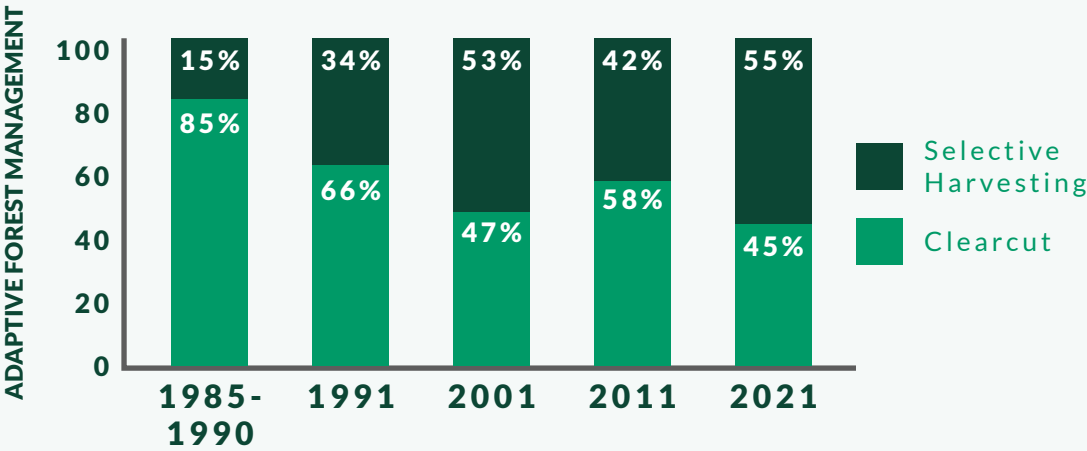
OVER 50% OF OUR HARVESTING IS WITH NON-CLEAR CUT METHODS



FOREST ROADS BUILT:  
476 KM/295 MI

TOTAL ROAD NETWORK:  
30,749 KM/19,107 MI

Percentage of land harvested by method over 35 years



### Wood Harvested

2,086,528 tonnes on Crown  
2,405,430 tonnes on Freehold  
324,086 tonnes Purchased Stumpage



### Wood Purchased

1,750,101 tonnes

### TOTAL -

6,566,145 tonnes  
(Crown, Freehold and Purchased)

ABOVE AND BEYOND

19 YEARS OF THIRD-PARTY FOREST CERTIFICATION

100% of land certified



100% of land certified



100% of land certified in Maine



The mark of responsible forestry



# HEALTHY AND DIVERSE FORESTS

WE RELY ON THE FOREST FOR EVERYTHING WE DO

Since 1882, our approach to sustainability has been simple - if we look after the forest, the forest will look after us. This approach requires balancing the short-term needs of the business with the long-term vision required to sustain generations of forests.



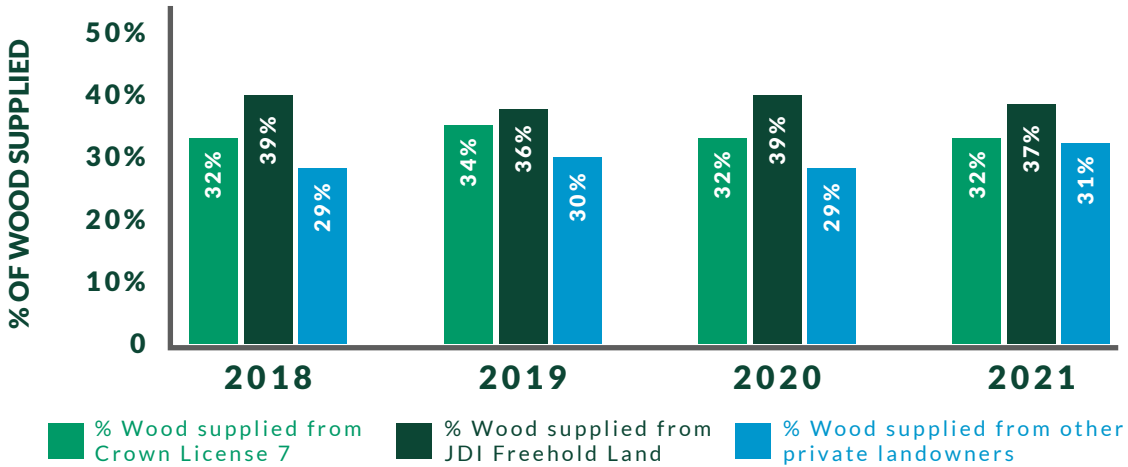
Cains River, Boiestown, NB



## IRVING WOODLANDS MANAGED FORESTS

HECTARES	ACRES	
796,321	1,967,709	NB & NS Freehold
518,256	1,280,611	Maine Freehold
1,062,471	2,625,366	NB Crown License 7
2,377,048	5,873,686	Total

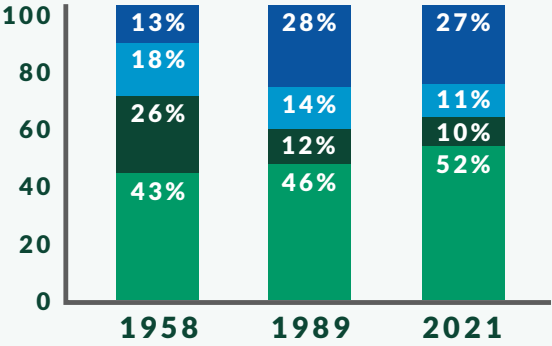
## WOOD SUPPLY DASHBOARD





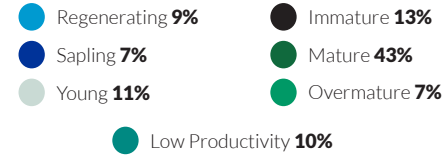
# COMMITTED TO LONG-TERM BIODIVERSITY

## Increasing Hardwood Forests Over Time

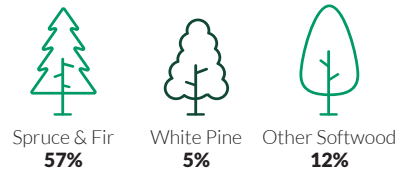


### CROWN LICENSE 7

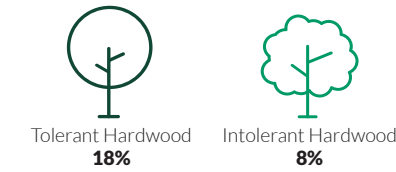
#### DIVERSITY OF FOREST AGE CLASSES



#### DIVERSITY OF FOREST SPECIES



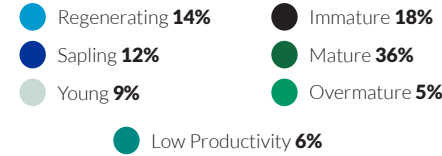
74% SOFTWOOD



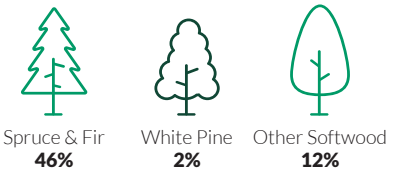
26% HARDWOOD

### JDI FREEHOLD (NB, NS, ME)

#### DIVERSITY OF FOREST AGE CLASSES



#### DIVERSITY OF FOREST SPECIES



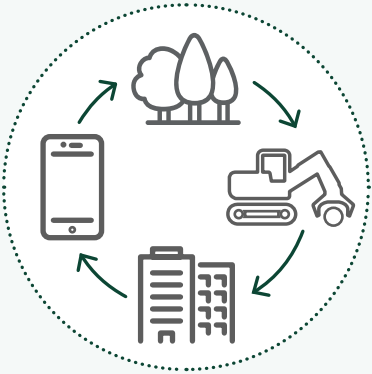
60% SOFTWOOD



40% HARDWOOD

# CONTINUOUS IMPROVEMENT

KNOWLEDGE AT OUR FORESTERS FINGERTIPS



## A Connected Forest

Our foresters can work wherever they are from their phones, which eliminates drive time, fuel consumption, and promotes a greater work/life balance.



Over 200 remote forestry machines report live data back to Woodlands offices



Live data inside a harvester, southern NB

## TECHNOLOGY HIGHLIGHT

**LIVE DATA:** Using a combination of LiDAR technology, GIS mapping, and GPS, our instant information transmission has increased our global competitiveness, efficiency, and forest management accuracy. Through live data transmission, supervisors and harvesters receive up-to-the-minute changes to forest planning from foresters.



## DRIVING BUSINESS FORWARD

- We increased our fleet to 26 tri-drive configured units resulting in:



- Tri-drive program increased 73% since 2020. Each truck has an **increased payload of 15%**.
- 506,235 mtons moved with **2324 less truckloads** for the same volume of wood.
- Truck cycle times **improved 21%**, with 8,700 hours idle time eliminated and **15% less fuel consumed**.

## WE CONSERVE 23% OF THE LANDS WE OWN OR MANAGE

CONSERVED LANDS	FREEHOLD	CROWN LICENSE 7
UNIQUE AREAS	18%	30%
WATER AND WETLAND BUFFERS		
DEER WINTERING AREAS	240,351 HA	337,445 HA
OLD FOREST HABITATS		
PROTECTED NATURAL AREAS	593,787 AC	833,658 AC

TOTAL CONSERVED LAND (FREEHOLD AND CROWN):  
577,796 HA / 1,427,445 AC

# PLAN. HARVEST. REPEAT.

Growing and securing our wood supply means we plan for the next 80 years.

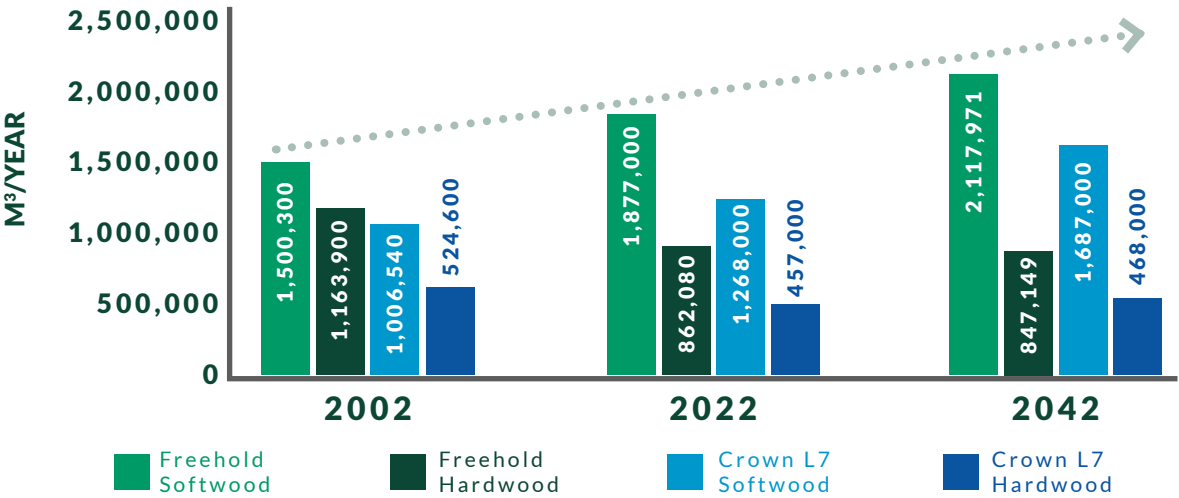


Shelterwood Harvest, Sussex, NB

IN 2021 WE HARVESTED  
**1.8%**  
OF THE FOREST.  
EACH YEAR IT IS <2%

AVERAGE HARVEST OPENING SIZE		
Freehold	Crown L7	Average
19.2 HA 47.5 AC	28.7 HA 70.9 AC	22.4 HA 55.3 AC

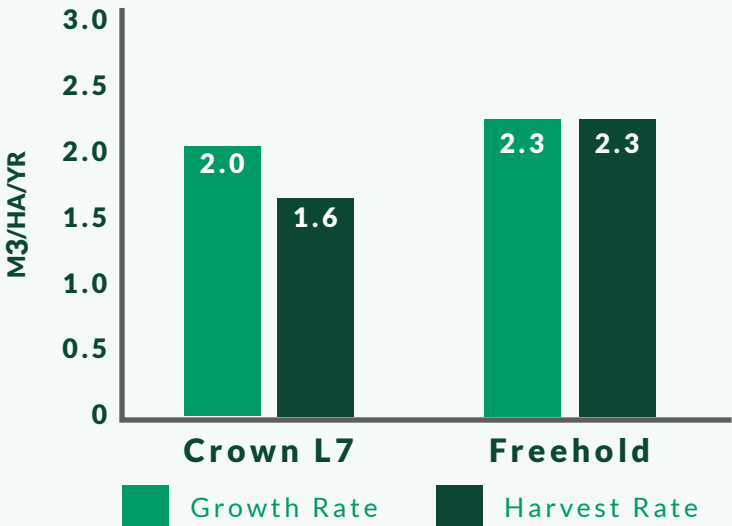
A GROWING WOOD SUPPLY



# — EXCELLENCE IN FOREST PROTECTION

Our responsible forest harvesting and action against pests and fire protects our wood supply for generations.

## GROWING MORE THAN WE HARVEST



Southwest Miramichi River, Deersdale, NB

## AREA DEFORESTED (NEW FOREST ROADS)



738 HA  
1,824 AC  
0.03%

## DEFOLIATION (SPRUCE BUDWORM)



TOTAL NB  
11,500 HA  
28,400 AC  
0.002%

## AREA BURNED (FOREST FIRE)



TOTAL NB FIRES  
180  
380HA / 939AC  
0.00006%

## FIREFIGHTING



4 FIXED  
WING AIR  
TANKERS



1  
SPOTTER  
PLANE



2  
HELICOPTERS



7  
AIRSTRIPS



37 FIRE  
TRUCKS



47 PUMP  
UNITS



360,000+  
FEET OF  
HOSE



# COMMITTED TO LONG-TERM FOREST RESEARCH

1992-PRESENT



**\$30 MILLION SPENT ON OVER 30 YEARS OF RESEARCH.**

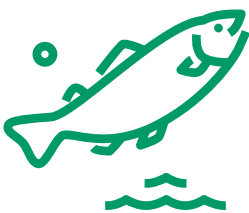
## Over 20 years of the Forest Research Advisory Committee (FRAC)

In close collaboration with expert scientists, we use data to inform our best management practices as part of our commitment to Adaptive Forest Management.

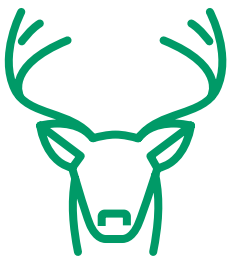


Collared yearling moose, Tracy, NB

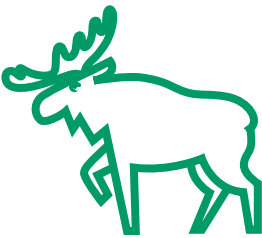
All findings are published in independent, peer-reviewed, scientific journals.



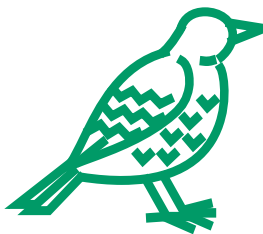
FISH AND WATER



DEER MOVEMENT



MOOSE & WINTER TICKS



SONGBIRDS

# PROTECTING WATERCOURSES WITH BEST MANAGEMENT PRACTICES

PROJECT PARTNERS



JDI partnered with scientists to determine if our forest management operations impact freshwater ecosystems.

JDI uses high-precision Wet Areas Mapping to avoid or minimize impact on water and wet area crossings.

## RESULTS

- Intensity of forest management does not translate into greater environmental impacts.
- All monitored sites were classified as having good or very good biological quality.
- Some sediment ran off into streams below watercourse crossings, but the amount stayed within water quality standards.

PROJECT PARTNERS



Researchers are working to develop a modelling tool to tell when rivers become too stressed for different age classes of salmon and brook trout.

RESEARCHERS: Dr. Tommi Linnansaari, Dr. Antòin O’Sullivan

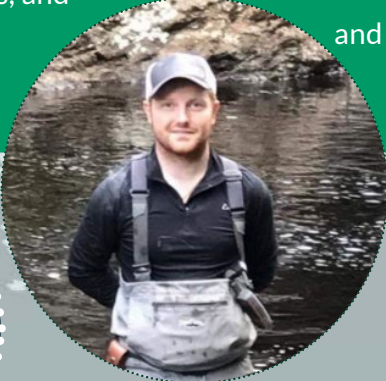
## STATISTICS & FINDINGS SO FAR:

- 56 underwater cameras have been installed to determine what temperatures drive fish to cold water refuges.
- The threshold temperature at which a fish seeks cold water refuge fluctuates depending on how much time it has spent in cold water and the frequency of warmer water events.

RESEARCHER PROFILE

## ANTÒIN O’SULLIVAN

from Limerick, Ireland has most recently completed a PhD in remote sensing and ecohydrology at the University of New Brunswick. His focus is on how the waterscape moves, and how this affects forests, streams, rivers, wetland ecosystems, and their flora and fauna.



Flyfisherman, Cains River, Central NB

# WHITE-TAILED DEER IN THE WORKING FOREST

## PROJECT PARTNERS



**RESEARCHERS:** (Northeast Deer Partnership): Dr. Graham Forbes (UNB), Dr. Carly Sponarski (UMaine), Joe Kennedy (NBERD), Dr. Amber Roth (UMaine), John Gilbert (WDLS), Nathan Bieber (MIF&W), Elias Ayrey (UMaine), Dr. Dave MacLean (UNB), Joe Nocera (UNB), Ian Thompson (UNB), Philip Wiebe (UNB)

## RESEARCHER PROFILE

**PHILIP WIEBE** has been a biologist with Canadian Forest Services for over 15 years and studies the effects of forestry on forest-dwelling animals in Canada. He



is currently a PhD student at the University of New Brunswick focusing on white-tailed deer. Philip hopes to help gain a better understanding of the relationship between habitat quality and population growth through animal location technology.



**We maintain 135,410 HA/334,599 AC of mature coniferous deer wintering areas.**

## FINDINGS SO FAR:

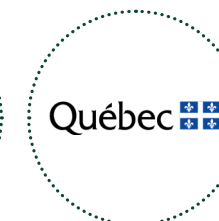
- Deer use known routes during seasonal migration; average migration is 20-40 km.
- Summer range is in forest stands <12 meters tall and typically around 5 meters. This is common in regenerating clear cuts <15 years.
  - This suggests deer browsing is not negatively affected by silvicultural practices.
- Winter range is in dense mature conifer forests that provide cover.
- Deer take advantage of winter harvesting operations to feed from fallen treetops.

## STUDY STATISTICS

- Over 100 deer GPS collared in 5 years to assess population changes and silviculture practices.
- Each collar creates up to 10,000 location points over 3 years.
- The tracking is accurate to 4.5 metres (15 feet).
- The longest tracked migration was 110 kms between summer and winter habitats.

# UNDERSTANDING CLIMATE: MOOSE AND TICK INTERACTIONS

## PROJECT PARTNERS



This five-year project focuses on understanding possible impacts of winter ticks, climate change, and predation on moose populations in NB and QC.

**RESEARCHERS:** Christian Dussault (MFFP), Jean-Pierre Tremblay (ULaval), Steeve D. Côté (ULaval), Joe Nocera (UNB), Patrick Leighton (UdeM), Christopher Fernandez-Prada (UdeM), Sandra Hamel (ULaval)

## RESEARCHER PROFILE

**DOUGLAS MUNN** is

a wildlife biologist PhD student at the University of New Brunswick who has been involved in a 5 year moose winter tick research project with JDI. His dissertation focuses on the movement ecology of juvenile moose in QC and NB to identify possible impacts of winter ticks, climate change, and predation on moose populations. Douglas hopes to develop management strategies that address current and future factors affecting moose in Eastern Canada.



**In 2022, 4 calves were equipped with video enabled collars which captured 3 months' worth of footage!**

## STUDY STATISTICS

- 198 calves GPS collared in 6 regions to assess population health.
- 99 were treated with an acaricide to compare tick levels.
- Preliminary results indicated that the acaricide significantly reduced number of ticks per animal.
- Survival rate of treated calves is 93%.



**Up to 80,000 ticks can be found on a single moose.**

## FINDINGS SO FAR:

- Tick loads in 2022 were higher than 2020 (study paused in 2021).
- Drier summers correlate with lower tick counts the following fall.
- Infestations weaken moose and make them vulnerable to other diseases.
- Acaricide treatment reduces tick count.



# HIGH BIRD DIVERSITY AND RICHNESS IN MANAGED FORESTS

## PROJECT PARTNERS

Canada

Carleton  
UNIVERSITY

UNIVERSITY OF MAINE  
FORT KENT  
UNIVERSITÉ DU MAINE

SERVICE CANADIEN DE LA FAUNE  
CANADIAN WILDLIFE SERVICE

JDI partnered with scientists at Natural Resources Canada, Carleton University, and the Canadian Wildlife Service in 2016 for a five-year songbird habitat research project.

Acoustic monitoring devices were placed in multiple stands in each of the **17 dominant forest types** in Black Brook over two seasons. JDI's enhanced mapping system gives researchers the ability to know the forest landscape and learn how species use different forest types.



Canada warbler

## GOALS OF THE STUDY

Assess songbird species presence and habitat preferences in the Black Brook district.

## RESULTS

suggest that the managed landscapes of Black Brook have not changed the ability of mature forest stands to supply habitat to forest bird species. We look forward to the full results of this study.

**458 SITES**  
sampled with  
**90 BIRD SPECIES**

identified from the recordings in the laboratory.

Initial comparison shows that the **HIGHEST DIVERSITY OF SPECIES (77)**

was found in the most intensively managed forest.

This is more species diversity than in Mount Carleton Provincial Park.

# AWARD-WINNING CONSERVATION PROGRAM



23% of our land is set aside for conservation.



We have seen a 32% increase in the number of sites over the last 5 years.



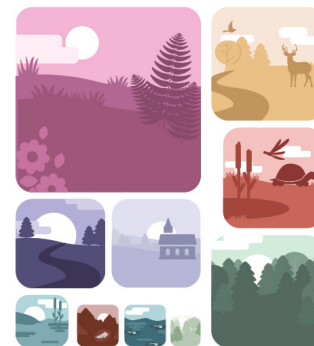
We added 156 new sites in 2021.



DISCOVER  
THE GIFT OF  
NATURE

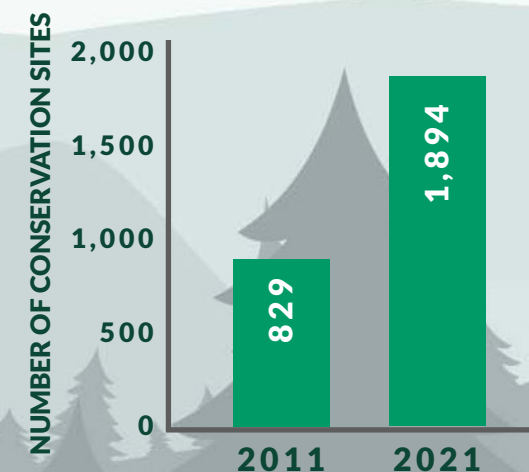
**1,894**

TOTAL # OF SITES  
TOTAL HECTARES: 81,331  
TOTAL ACRES: 200,887



673 PLANTS  
451 BIRDS & MAMMALS  
243 REPTILES & INVERTEBRATES  
186 UNIQUE FOREST STANDS  
146 HISTORIC  
87 AESTHETICS  
56 LAKES & WETLANDS  
21 FISH  
22 GEOLOGICAL & FOSSIL  
9 HIGH CONSERVATION FOREST

OVER 1,000 SITES ADDED IN  
THE LAST 10 YEARS



Installed 19 interactive signs at the Irving Nature Park and La Dune de Bouctouche

Developed a website showcasing a sampling of 20+ sites from the total 1,894



Fall Brook Falls, Boiestown, NB

**Fall Brook Falls:**  
5,000 visitors in 2021

Visit us online



[JDIRVINGCONSERVATION.COM](http://JDIRVINGCONSERVATION.COM)

# OUR PARKS

WE MAINTAIN FOUR FREE PARKS FOR PUBLIC USE & ENJOYMENT

## 420,173

VISITORS TO THE PARKS IN 2021  
(IRVING NATURE PARK & IRVING ECO-CENTRE: LA DUNE DE BOUCTOUCHE)



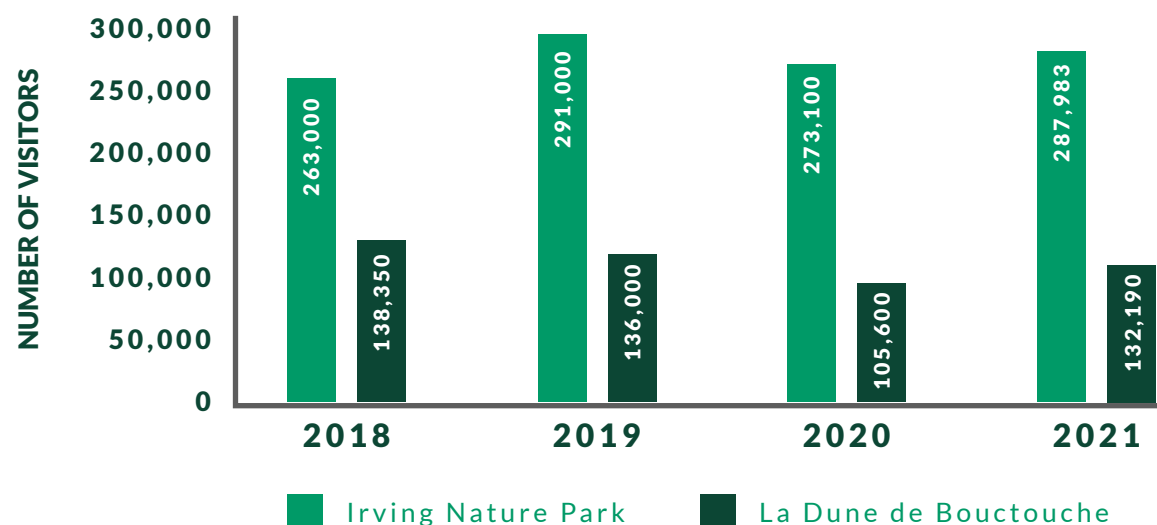
"Wolastoq" means "the beautiful river" in the language of the Wolastoqiyik people. The park was built in 2004 by J.D. Irving, Limited and overlooks the Reversing Falls rapids. The park is dotted with chainsaw-carved wood statues of historical figures, including the legendary Koluskap the Great Beaver, Samuel de Champlain, and our very own K.C. Irving.



- Free BBQs
- Public washrooms
- Accessible trails
- Guided tours
- Planned programming
- Partnerships with local ENGOS



VISITORS OVER THE YEARS



# STAKEHOLDER ENGAGEMENT

LOCALLY FOCUSED ON OUR COMMUNITIES

55 STAKEHOLDER PARTNERSHIPS

4 NEW PARTNERS

64 COMMUNITY BASED PARTNERSHIPS

11 UNIVERSITY PARTNERS

12 OUTDOOR ASSOCIATIONS

3 MOTORIZED RECREATION ACTIVITIES

9 FISHING & HUNTING CLUBS

2 INDUSTRY ASSOCIATIONS

3 GOVERNMENT

12 NON-GOVERNMENT ORGANIZATIONS



158  
Total Partners



9,100  
People Reached



520  
Stakeholder Meetings



\$203,000/80+ events  
Community Donations/Events



BE A FORESTER FOR A DAY  
AND BOOK A TOUR WITH US

## BRAND AWARENESS IN THE DIGITAL AGE:

Social media is now an essential method to reach stakeholders, provide operational information and maintain and improve brand awareness and trust.

## CHECK US OUT ONLINE! ENGAGING STAKEHOLDERS THROUGH SOCIAL NETWORKING



IRVING WOODLANDS  
24,000



IRVING WOODLANDS  
2,400



@IRVINGWOODLANDS  
800

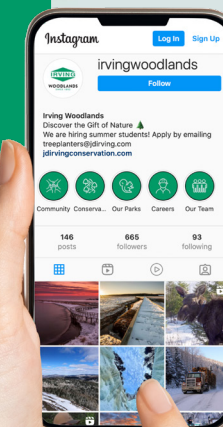
27,200 NEW FOLLOWERS IN 2021

STAKEHOLDER PROFILE



Irving Woodlands is pleased to partner with the Snowmobilers Association of Nova Scotia (SANS) to grow their network of winter recreation land, with an agreement that covers 118 kilometers of managed trails on J.D. Irving, Limited land.

Between 350 clubs across New Brunswick, Nova Scotia, and Maine, we have over 1,300 kilometers of snowmobiling trails.







**PO Box 5777  
300 Union Street  
Saint John, New Brunswick  
E2L 4M3 Canada**

**Toll Free:  
1-800-518-7999  
Main Switchboard:  
1-506-632-7777**

**[www.irvingwoodlands.com](http://www.irvingwoodlands.com)  
[www.jdirvingsustainability.com](http://www.jdirvingsustainability.com)  
[www.jdirvingconservation.com](http://www.jdirvingconservation.com)  
[info@irvingwoodlands.com](mailto:info@irvingwoodlands.com)**

**Southwest Miramichi River, Deersdale, NB**