Grounds for Concern

AN AUDIT OF COMPLIANCE WITH
ONTARIO FOREST PROTECTION RULES:
ALGONQUIN PARK AND THE MAGPIE FOREST

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A Field Report Prepared By:

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and Wildlands League
A chapter of the Canadian Parks and Wilderness Society
This report was researched, written and published by the Sierra Legal Defence Fund and the Wildlands League chapter of the Canadian Parks and Wilderness Society.

The Sierra Legal Defence Fund (SLDF) is a charitable organization that provides free legal services to environmental groups across Canada. SLDF aims to enhance public access to the legal system, set important legal precedents that will strengthen existing laws, and provide professional advice on the development of environmental legislation. SLDF's lawyers have brought cases on behalf of concerned citizens on a wide variety of issues including forest management, endangered species habitat protection, water pollution, environmental impact assessment, and national parks protection. SLDF is funded primarily through public donations and private foundation grants. It has over 20,000 individual supporters across Canada.

The Wildlands League is a charitable organization founded in 1968. The League is an Ontario chapter of the Canadian Parks and Wilderness Society (CPAWS). The Wildlands League promotes forest protection and sustainable forest management practices. It supports the protection of wild places through the completion of a system of ecologically representative protected areas while also promoting ecologically centred resource use and planning. The League relies mainly on public donations and foundation grants for funding. It currently has over 6,000 individual supporters in Ontario.

Acknowledgments

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Executive Summary

This report summarizes the results of field audits of recent logging operations in the northeast section of Algonquin Provincial Park¹ and on public land in the Magpie Forest Management Unit northeast of Wawa, Ontario. Both audits were conducted in June-July 1999. Wildlands League and Sierra Legal Defence Fund (SLDF) staff conducted a total of 24 days of field work that included 63 forestry operation site visits in the Magpie and 81 sites in Algonquin Park². The audit investigated compliance with legally binding forestry standards prescribed in Forest Management Plans (FMPs) and related documents approved by the Ontario Ministry of Natural Resources (MNR). The Algonquin Park FMP and field operations were implemented by the Algonquin Forestry Authority (AFA), a provincial Crown corporation, and the Magpie Forest FMP was implemented by Dubreuil Forest Products Limited (DFPL), a company owned by Buchanan Forest Products.

Table 1 summarizes the audit findings. In the Magpie Forest, the condition of Areas of Concern (AOCs are no-harvest or partial-harvest reserve buffers around wildlife habitat areas, water bodies or other values) was fairly good. Only 18% of AOCs were violated (all minor). Surprisingly, the problems in Algonquin Park were greater. In Algonquin Park, we discovered violations at 35% of the AOCs investigated — indicating that wildlife and fish habitat is not being adequately protected in many instances.

The condition of water crossings in the Magpie Forest, including construction and maintenance of culverts and bridges was found to be unsatisfactory at approximately half (53%) of the sites inspected. Minor violations were found at 41% of the locations and two major violations (12%) were discovered, including a road washed out with material directly deposited into a fish-bearing stream. Similar problems, like blocked or damaged culverts, were encountered in Algonquin Park at 39% of the sites — and most of these were major violations, including impairment of fish habitat.

Investigators also found road construction problems like flooding, missing culverts or road washouts at eleven sites in the Magpie and eight sites in Algonquin Park. Some of the road problems encountered in the Magpie were likely due to the poor grade of material used during construction.

¹ Commercial logging is permitted in 77.9% of Algonquin Park. Ontario Parks, Algonquin Park Management Plan, 1998, page 13

² The SLDF and Wildlands League audit program has evolved considerably since it began two years ago. It started with a technical review of operations in the Algoma Highlands in 1997, summarized in the report Cutting Around the Rules. An audit of the Lower Spanish Forest in 1998 and 1999 allowed for further investigation of policy and site-level issues first identified in Algoma. These audits have benefited from our discussions of compliance with logging operators and forest management staff during audit field-season preparation, data collection and analysis.
Violations of the MNR’s *Code of Practice for Timber Management Operations in Riparian Areas*, whose aim is to protect small waterbodies from the impacts of forestry operations, were similar in number in both audits. Eight contraventions were encountered in the Magpie and six in Algonquin Park. Garbage was not encountered in Algonquin Park, while investigators found waste at four sites in the Magpie Forest.

In addition, a significant finding in Algonquin Park was that forestry operations do not adhere to the MNR’s *Timber Management Guidelines for the Provision of Moose Habitat*, which advises that 120-metre reserves generally be left around moose aquatic feeding areas. Park managers leave only 30-metre buffers. Since moose are a “featured species” in forest management (whose management is intended to benefit many of these types of wildlife), this shows that important wildlife habitat areas are not being adequately protected in the Park.

These audits show that improvements are required in the standards of care achieved in forest management. To remedy the situation, significant improvements in MNR inspection and enforcement efforts are needed, coupled with much more careful attention to compliance by industry. It must be remembered that the forestry standards examined in these audits are the bare minimum legal requirements that should be complied with across the province. The requirements are not complex and typically involve such matters as leaving selected wildlife habitat areas uncut, protecting streams from erosion and debris, and properly constructing roads, bridges and culverts. If these basic standards are not followed, the cumulative effect on the Crown forest can be significant. Some of the effects of poor forestry operations include: populations of wildlife living near water bodies may diminish, fish habitat and spawning areas may be destroyed, and water quality may degrade.

<table>
<thead>
<tr>
<th>Investigation</th>
<th>Magpie</th>
<th>Algonquin Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOC Violations (buffers to protect wildlife habitat, water bodies, etc.)</td>
<td>5 (18%)</td>
<td>9 (35%)</td>
</tr>
<tr>
<td>Water Crossing Violations (culverts/bridges)</td>
<td>9 (53%)</td>
<td>13 (39%)</td>
</tr>
<tr>
<td>Road Construction Violations</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Riparian Reserve Violations (to protect small streams)</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Garbage Violations</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: Total number of violations noted, and percentage of violations out of total sites visited where appropriate.
In short, the MNR and industry must improve performance so that the public can expect close to 100% compliance with forestry standards. Anything less compromises the ability of the province to ensure that our public forests are being managed sustainably.

**Summary of Recommendations**

- Significant efforts need to be made by both MNR and the forestry industry to improve operations and enforcement such that close to 100% compliance is achieved.

- The Algonquin Forest Authority (AFA) should identify and designate moose habitat ACCs in the Forest Management Plan and in the field as required by the Moose Guidelines.

- The *Riparian Code* should be enforced, and if necessary clarified, to protect water quality during timber operations. The MNR should emphasize that the *Riparian Code* applies to all waterbodies, including those not covered by *the Timber Management Guidelines for the Protection of Fish Habitat* and including those not seen on 1:50,000 scale maps, particularly wetlands and small intermittent streams.

- Dubreuil Forest Products Limited (DFPL) should use better quality (i.e. coarser, less erodible) material to construct roads close to stream crossings in order to reduce siltation of water courses.

- The AFA’s use of overflow culverts is good and should be adopted in other management units.

- The AFA and DFPL should conduct more frequent inspection and maintenance of culverts at stream crossings.

- The practice of active physical abandonment of roads should continue in an environmentally sound manner, including grading sides at a stable angle and providing appropriate structural support.

- Forest companies should be legally obligated to provide all forest-planning documents (Forest Management Plans, maps, air photography, etc.) to the public for no charge or at prices no greater than the cost of reproduction.
Location of Algonquin Park Forest

Data source: Ontario Ministry of Natural Resources

8 / GROUNDS FOR CONCERN
Ontario’s Forests and How They Are Managed

Ontario is a province of forests. Tens of millions of hectares of Ontario’s land area are covered by forests. These forests are many things to many people. They are a source of inspiration and wonder for many of us and play a large role in our identity as Canadians. For hikers, paddlers, anglers and hunters, they offer a bounty of recreational opportunities, while for timber companies, loggers, guides, tourist operators, trappers and others, they are a source of income.

Ontario’s forests also provide vital ecological services which we all depend on. They provide pure water and moderate the flow of rivers and streams. They help clean the air and maintain the planet’s carbon balance, and they are home to thousands of species of animals and plants — many of which depend on areas of undisturbed old-growth forests. Finally, to their original Native inhabitants, Ontario’s forests have been a home for many thousands of years.

The provincial government manages Ontario’s Crown (public) forested land on behalf of the citizens of Ontario. It is supposed to do so in the public interest, ensuring that commercial logging activities do not interfere with the recreational, water quality, wildlife, fisheries and other forest-related values that are vitally important to all citizens of Ontario.

As logging rates have increased, there has been a growing public demand that timber interests be balanced with environmental-protection measures in forest management. This demand exists at the international, national, provincial and local levels and is based on a desire to see some lands protected from industrial activities as well as a belief that logging activities must be socially, ecologically and economically sustainable.

Governments have responded with a variety of processes and policy reforms aimed at changing the way our forests are managed. In Ontario, these changes have been packaged together under the rubric of “sustainable forestry”. In 1994, some of these policy changes were codified in new forestry legislation entitled the Crown Forest Sustainability Act (CFSA). The CFSA requires the Minister of Natural Resources to ensure that forests are managed in a way that sustains environmental values (fish, wildlife, water quality, etc.), economic values (timber, trapping, tourism, etc.) and social values (recreational, heritage, etc.). Under the CFSA, the Minister of Natural Resources is made ultimately responsible for the approval of five-year forest management plans (FMPs) and the one-year work schedules that result from these plans. As well as following these plans, forestry companies must adhere to site-specific environmental protection requirements outlined in various permits and approvals (such as an approval to commence harvesting operations under the CFSA).
But along with this new sustainable forestry mandate, the Ontario Government in recent years has been pursuing a vigorous deregulation and down-sizing program. Few departments have been harder hit than the Ontario Ministry of Natural Resources (MNR), the government agency that oversees the management and protection of public land in Ontario. The operating budget of the MNR has fallen by 24%, and its capital budget by 44% between 1994 and 1999. The Ministry’s staff has declined from a total of 6,639 in 1994 to 4,643 in 1998, a loss of 30%. ¹ (The forest planning and inspection departments have been particularly hard hit in the last few years. In November 1999, the Ontario government announced new cuts of $2.3 million from the parks and forests programs.)

These changes have led the Sierra Legal Defence Fund and the Wildlands League to question whether sustainable forestry initiatives have been effective in ensuring a high standard of care for our public lands. We felt that the best way to answer this question was to examine how better forest-management practices were being implemented on the ground. With this goal in mind, we decided to investigate the degree to which forest protection requirements have been adhered to during recent logging operations.

Our first two studies revealed unacceptably low compliance and enforcement levels. We also decided that a thorough evaluation of the issues at the root of compliance with the current forest-protection guidelines would be most effective if it included an exploration of the reasons for non-compliance from the point of view of the logging operator. Joint discussions and field visits have taken place with forestry industry staff, the Wildlands League and Sierra Legal Defence Fund. We have concluded that there are problems with the interpretation of some key guidelines and recommend that they be revised and written more clearly to improve their implementation on the ground. It is hoped that the current provincial guideline review process, coordinated by MNR’s Provincial Forest Technical Committee, will eliminate these problems and improve forest practice standards.

In this report we present results of the audits carried out in the Magpie Forest Unit and Algonquin Provincial Park. These studies only assess whether existing requirements are being followed on the ground. They do not evaluate whether the existing requirements are adequate to protect environmental values.

The outcome of this study is important for several reasons. The Ontario Government is currently in the process of transferring much responsibility for the management of public forests from the MNR to the forestry industry. MNR involvement in FMP preparation, forestry monitoring and auditing has already been significantly reduced. There is widespread public concern that such a transfer may create significant risks to the long-term management and care of our public forests. It is therefore important to know how well the system is working and how it could be improved.

Additionally, for Algonquin Park the outcome of the study is important because it is the only provincial park in Ontario where logging is permitted. There is a strong public concern regarding this activity and a need for the public to know whether logging and related activities are taking place in a manner that is ecologically sustainable. The audit results will be useful to MNR and Algonquin Forestry Authority staff as they will provide a detailed evaluation of compliance with selected environmental protection measures. This audit does not address the larger question of whether commercial logging is appropriate in a provincial park. (This important question will be discussed in a forthcoming Wildlands League publication.)

At a policy level the forestry industry, ENGOs and MNR are exploring new ways of improving forest management through the implementation of the 1999 Ontario Forest Accord. * Many of the issues that the SLDF/WL audit program has identified need to be addressed within this new framework.

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* The Forest Accord is an agreement to complete a protected-areas system and improve forest management.
The Study Areas

The Magpie Forest

The Magpie Forest (see map on page 7) is located east of Lake Superior and 200 km north of Sault Ste. Marie, just north of Wawa, Ontario. It is managed by Dubreuil Forest Products Limited (DFPL) under a Sustainable Forest Licence.

Logging activity has changed dramatically in the Magpie since it began in the 1930s. Although there are no records of the volumes or areas harvested at that time, the total amount of area harvested in the 1950s is estimated to have been just over 1000 hectares. In 1961, Dubreuil Brothers Limited established a sawmill in Dubreuilville, and since then, approximately 36% of the Crown production forest (86,000 ha) has been harvested. In the last decade, the total amount of area harvested is 32,000 hectares.

Roads and, subsequently, recreationists are penetrating a larger area because of the increasing logging activity. As a result, the Magpie Forest Unit is quickly moving from an area of wilderness containing a small amount of industrial landscape to an industrial landscape interspersed with small wild areas. Because of this, it is extremely important for forestry operations to limit their impacts on the environment and wildlife habitat.

![Area Harvested in the Magpie Management Unit Each Decade from 1950-1990](image)
Algonquin Provincial Park

Logging has taken place in Algonquin, Ontario’s oldest provincial park (see map on page 8) since well before it was established in 1893. It is now the only park where commercial logging is permitted. It is also the third largest provincial park in Ontario, covering a total of 7,571 square kilometers. It is visited annually by hundreds of thousands of people from all over the world. In addition to its recreational values, Algonquin is an area of unique ecological importance. The Park shelters the headwaters of all the region’s rivers and its forests, lakes and streams are home to an astonishing array of fish and wildlife species. Algonquin is a refuge for species that are now uncommon in the rest of heavily developed southern Ontario, such as the black bear, wolf and lake and brook trout. There are concerns that commercial forestry operations could adversely affect the park’s ecological balance.

The east and west sides of the park are separated by highlands, which result in different climates and forest types. The forest on the west side of the park is dominated by hardwoods while the east side (which is the focus of this audit) is dominated by softwoods such as red, white and jack pine mixed with hardwoods such as white birch and poplar.

In 1974, the Ontario government, trying to resolve conflicts between logging and other park uses, developed the Algonquin Park Master Plan (updated in 1989), which sets out a zone covering 77.9% of the park in which logging is permitted. Further plans developed by the Algonquin Forestry Authority (AFA), which is responsible for all the logging and its associated activities within the park, set out proposed logging activities for successive five year periods. The AFA follows the same guidelines and legislation that apply to all other forestry operations on Crown lands.

Independent reviews, such as this audit, will help increase the transparency and accountability of forest management operations and park management.

Field Inspection Methods for the Algonquin Park and Magpie Forest Audits

Operations in the Magpie Forest Unit performed during the 1994-1999 FMP were investigated on-the-ground from June 21 to July 6, 1999. The Magpie audit was carried out in seven “tiles” within the unit. Tiles are a technical term for geographic areas approximately 10 km x 10 km (similar in size to a township). Field staff relied on plans and documents provided by the Ministry of Natural Resources (MNR) office in Wawa and maps produced by Dubreuil Forest Products Ltd. (DFPL).

Logging operations in Algonquin Park performed during the current 1995-2000 FMP were investigated on-the-ground from June 28 to July 7, 1999. The Algonquin audit was carried out in 20 “tiles” within the park.
that were agreed upon with the Algonquin Forestry Authority (AFA). Restrictions were imposed on 5 tiles to protect the interests of recreational users and the safety of the investigators on active sites. Field staff relied on plans and documents provided by the MNR (Algonquin Park and Sault Ste. Marie offices) and maps produced by the AFA (Huntsville).

The key documents for both audits include the FMP and associated Annual Work Schedules, the companies’ allocation maps and the various MNR standards applicable to forestry operations. Area of Concern reserves (buffers) established by the FMP, and riparian reserves required by the Code of Practice for Timber Harvesting in Riparian Areas (the “Riparian Code”) were inspected. As well, compliance with standards applicable to the construction and maintenance of water crossings was also audited. These standards are listed in the MNR’s Environmental Guidelines for Access Roads and Water Crossings, and are legally binding under the Annual Work Schedule. Our study sought to determine the degree of compliance with these basic standards meant to protect water quality, fish and wildlife. Observations of substandard road construction, maintenance and waste violations were also compiled where encountered.

The two audits were conducted simultaneously in the summer of 1999. Prior to undertaking field work, the investigators met with local MNR officials to obtain all relevant documents and maps for the area to be studied. A representative selection of sites were then chosen for detailed field work. Each field site was evaluated first for compliance with legal and technical requirements and secondly for the broader impact on the environmental values of the site and on the ecosystem. Staff from the Algonquin Forest Authority and Dubreuil Forest Products Limited accompanied field investigators to explore and discuss non-compliance at selected sites.

Areas of Concern

Areas of Concern (AOCs) are reserves where logging is prohibited or restricted in order to protect important water bodies, wildlife habitat areas, or other values. AOCs outlined in the FMP were examined on the ground to determine degree of compliance with prescribed standards (e.g. standards relating to method of harvest to be used, precautions to be taken to prevent ecological damage, etc.). The prescriptions applicable to AOCs differ from site to site, so each AOC was audited vis-à-vis the specific requirements applicable to it. These prescriptions are generally developed in conjunction with broad MNR guidelines that establish specific measures to protect values such as fish, moose, birds, recreation areas, etc. AOCs were located in the field through the use of company allocation maps and Annual Work Schedule (AWS) maps. The company maps indicate the location of AOCs in the cut blocks and indicate the operational prescriptions to be applied. Locations were cross-referenced with a Global Positioning System (GPS) and topographic maps. The reserves prescribed by the AOCs to protect wildlife and waterways were then audited in the field.
When an AOC buffer width as measured in the field was found to deviate from the prescription required by the plan it was documented and classified according to the following criteria:

**Minor Violation:** no-cut reserve buffers were disturbed near their edge or the width of the buffer was at some point along its length narrower than required by the FMP.

**Major Violation:** The width of the buffer was consistently more than 20% narrower than required, and/or the disturbance was found to significantly detract from the purpose of the reserve, and/or cutting of a significant amount of the buffer and/or dumping logs had taken place within the buffer. In these cases the primary function of the AOC was found to be breached.

**Riparian Reserves (Waterway Protection)**

In addition to the specific AOC reserves established for selected waterways and habitats on a site-specific basis, a minimum three-meter reserve is required along all water bodies by the Riparian Code. Small streams and wetlands not protected by AOCs were inspected when encountered in the field to determine if the 3m reserves were intact along the banks of water bodies as required. This was done in the Magpie case study. However, in Algonquin the AFA to its credit applies a “voluntary” 30m buffer where any flowing water is encountered in the field, and therefore adherence to the three-meter requirement of the Riparian Code was not investigated in the park. Other aspects of compliance with the Code (see table below) were included in our review. In order to maintain consistency between the audits, field inspectors simply reported the number of riparian code violations observed. No overall percentages were reported. Table 2 below illustrates how riparian code inspections were classified as minor or major.

<table>
<thead>
<tr>
<th>Criteria of Riparian Code</th>
<th>Minor</th>
<th>Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trees/debris felled/deposited in waterbodies</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Logging debris on banks</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Equipment has destroyed banks/beds</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>3m reserve of forest floor/vegetation is disturbed</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
From the results of discussions with forestry industry staff during an audit of the Lower Spanish Forest, it became apparent that the Riparian Code and related implementation documents are in need of revision due to perceived ambiguities (as discussed in forthcoming Lower Spanish Forest report, 2000). We believe that the requirement for an intact 3m reserve along all water bodies (not just permanent or mapped rivers and streams) is clear and mandatory. The Code states: “a narrow filter of approximately three meters of undisturbed forest floor or vegetation (not necessarily tree species) is to be left on the banks of water bodies except where necessary to cross a stream.” Failure to adhere to this standard may harm streams through erosion, alteration of fish habitat and modification of water temperature (through removal of shade cover). The Code also specifies the following practices:

- Trees must not be felled into waterbodies at any time of year. No debris of any description is to be deposited in waterbodies.
- No logging debris is to be left on the banks of streams, rivers or lakes.
- Equipment operating adjacent to waterbodies shall not cause destruction or slumping of banks.
- Equipment is not to travel within streams or rivers during harvest or renewal operations so as to cause damage to banks or beds. Stream crossings are to be kept to an absolute minimum.
- Establishment of tertiary roads within riparian areas is only permitted in exceptional cases, where no reasonable alternative exists.

## Stream Crossings

Streams that were crossed by a logging road by means of a bridge or culvert (a pipe to allow water flow) were investigated for occurrence of siltation, culvert installation and placement problems, diversion of water, dumping of debris, etc. Improper installation or maintenance of a water crossing resulting in siltation of non-fish bearing waters were considered minor violations. These occurrences would, however, constitute violations of the MNR’s Environmental Guidelines for Access Roads and Water Crossings, compliance with which is mandatory unless a specific written exception is provided by the MNR. Siltation and barriers to the free migration of fish were considered major violations in fish-bearing waters since they are prohibited by both the Timber Management Guidelines for the Protection of Fish Habitat and the Environmental Guidelines for Access Roads and Water Crossings.

## Road Construction

In the Magpie Forest, problems with road construction or maintenance were noted only when encountered. In the Algonquin audit, because road construction was one of the priorities of the audit, the total length of road investigated for road construction and stream crossings was recorded and used as the measurement
standard by which to express the results. Cross culverts that caused washouts or flooding violated the Environmental Guidelines for Access Roads and Water Crossings, which states: “Cross culverts and offtake ditches are required to ensure adequate road-side drainage.” The volume of washouts was estimated by approximating the length, width and depth of the cavity on the road. For the most part, these were considered minor violations. Where trees died as a result of persistent flooding, however, it was classified as a major violation.

■ Waste

Waste investigations were not the focus of this study. However, where waste was discarded on Crown land, in or near riparian areas, or where there was evidence that equipment maintenance (refueling, lubricating, washing, etc.) was undertaken near riparian areas, field staff documented the incidents.
Field Inspection Results

**Areas of Concern**

Area of Concern (AOC) buffers, inspected in Algonquin Park and the Magpie Forest, are intended to protect values such as coldwater streams, self-sustaining trout lakes, campgrounds, canoe routes and hawk nests. Prescriptions for AOC reserves vary depending on the value to be protected. For example, coldwater streams are generally provided with a no-cut reserve and an adjoining modified-harvest zone ranging from 30 to 90 metres, depending on the slope of the terrain. The reserve is a 30-meter buffer in which harvesting is prohibited and the modified zone allows partial harvesting only.

**Algonquin**

<table>
<thead>
<tr>
<th>Type of AOC</th>
<th>Reserve Intact</th>
<th>Minor Violation</th>
<th>Major Violation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish/water quality</td>
<td>9</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Recreational</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hawk Nest</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Public Road</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

| Percentage        | 65%            | 23%             | 12%             |

The following is an example of a serious violation:

- Logging occurred inside a 30-meter no-cut buffer and logs were dumped inside the buffer's boundary.

What is particularly noteworthy is that AOCs established to protect fisheries and water quality were violated at nearly half (47%) of the sites inspected. By contrast, AOC reserves around recreation reserves were all found to be intact.

AOC violation: slash dumping and cutting inside a 30-meter buffer.
**Magpie**

Generally, AOC buffers were found to be intact or larger than what was required on the AWS maps and their boundaries were well marked in the field. The minor violations typically involved skidder activity in the reserve zone or a width of reserve consistently narrower than the legal requirement, but less than the 20% required for it to be classified as a major violation. No major violations were found.

<table>
<thead>
<tr>
<th>Type of AOC</th>
<th>Reserve Intact</th>
<th>Minor Violation</th>
<th>Major Violation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moose Habitat</td>
<td>1</td>
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<tr>
<td>Fish/Water Quality</td>
<td>19</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Recreational</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Wildlife Corridor</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

**Percentage**

82% 18% 0

**Riparian Reserves (Waterway Protection)**

**Algonquin**

Field inspectors documented six major riparian code violations. The violations involved evidence that skidders had been driven through a creek and wetland, causing deep rutting and pooling of water, trees being cut and felled into a stream and slash and debris being deposited in a waterbody.

Riparian code violation in Algonquin: tree stump found within the three-meter riparian zone of this wetland.
Magpie

A total of 12 sites near roads were investigated for potential violations of the Riparian Code. Field inspectors documented eight instances that were considered major violations of the Riparian Code. These included the piling of slash and removal of trees within three meters of a waterbody and evidence of machinery driven through adjacent wetlands or within the three-meter riparian zone.

Due to the low topography in the area, few well-defined streams or wetland areas were found within cutblocks. The majority of riparian inspections were conducted on those areas where a problem was observed; therefore, the results cannot be accurately expressed in a fashion where the number of violations is expressed as a percentage of the total number of observations.

Stream Crossings

Algonquin

<table>
<thead>
<tr>
<th>Table 5: Summary of 33 Stream Crossing Investigations in Algonquin Park</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Crossing</strong></td>
</tr>
<tr>
<td>Culvert</td>
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<tr>
<td>Bridge</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

The field inspectors found that the bridges in Algonquin were well maintained and installed. In addition, the use of overflow culverts (a second culvert that could accommodate water flow should the first one become blocked or damaged) on major road crossings was a common practice that should be commended. This practice lessens the impact of forestry operations on the forest and aquatic environment. However, we also discovered unacceptably high levels of stream-crossing violations at culverts. Twenty-six percent of all culverts had major violations (impairment of fish migration) and another 16% demonstrated minor violations.  

A follow-up field inspection of surveyed sites was carried out by Ontario Parks (MNR) staff. Following discussions between SLDF, the Wildlands League and Ontario Parks staff, classification of streams as fish or non-fish bearing was done based on their survey. Personal communication, September 10, 1999, John Winters (Ontario Parks).
**Magpie**

In the Magpie Forest, culvert placement, function and maintenance were satisfactory in almost 50% of the sites inspected. When violations were absent we found that in most cases culverts were carrying 10-20% of their flow carrying capacity (more than 50% is problematic). Sediment limiting techniques such as rip rap and geotextile barriers were used in the construction of all major road crossings and the placement of culverts was generally good. There were no instances where road crossings were acting as a barrier to fish passage.

There were several minor violations of the *Environmental Guidelines for Access Roads and Water Crossings*. These were contraventions of the guidelines that could affect fish habitat and included removal of trees close to streams, driving vehicles through adjacent wetlands or depositing of garbage close to fish-bearing waters. There were two instances where significant sediment deposition into a fish-bearing stream was found. These were considered major violations:

<table>
<thead>
<tr>
<th>Table 6: Summary of 17 Stream Crossing Investigations in the Magpie Forest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (all culverts)</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>8 (47%)</td>
</tr>
</tbody>
</table>

The most serious violations:

- Approximately 75m$^3$ of road material over a length of six meters from road 659-12 washed directly into a fish-bearing creek. The high silt content of the road material used is problematic because it is particularly erosible and damaging to fish and fish habitat. This failure appeared to be as a result of poor placement of an undersized culvert. A more detailed discussion of this and other specific failures is included later in this report.

![Far left: Major road washout into fish bearing creek. Left: Road fill material with very high silt content. This likely contributed to road washout into a fish-bearing creek.](image)
The ditchlines were excavated too deeply on both sides of road 10, causing erosion of eight cubic meters of sediment into another fish-bearing creek.

The placement of an undersized culvert led to a significant deposition (20m$^3$) of sediment into a wetland and foreshore area of a small lake due to excess water crossing over the road. This was considered a minor violation, as it was unclear whether this sediment would impact directly on adjacent fish habitat.

In addition to focusing on the legal requirements of licencees, these crossings were assessed to estimate the impact on the environment due to significant sedimentation, altering of stream channels, and blocking fish migrations. In some cases, there was more than one violation per site. The results are given in Table 7 below.

<table>
<thead>
<tr>
<th>Total Investigated</th>
<th>Significant Sediment</th>
<th>Alteration of Stream Channel</th>
<th>Debris in Channel</th>
<th>Barrier to Fish Migration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magpie</td>
<td>17</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Algonquin</td>
<td>33</td>
<td>4</td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

**Road Construction**

**Algonquin**

The field inspectors investigated approximately 73.6 km of secondary or tertiary road in the park (as measured by the vehicle odometer). In that length of road, 13 road inspections were made, excluding stream and river crossings, and eight violations were recorded. It has been estimated, therefore, that on average a violation was observed every 9.2 km traveled. Six of the violations were minor and two of the violations were major.
The most serious violations were:

- Where the road crossed a wetland, no culvert was installed resulting in significant flooding upstream and the killing of spruce trees on site.

- Where the road interrupted water flow and caused a significant washout into a downstream wetland.

*Left: Road washout in Algonquin Park. Right: Undersized culvert caused water to flood and damage road.*

**Magpie**

In the Magpie Forest, problems with roads and cross culverts were investigated as encountered in the field. A total of 11 minor violations were documented including missing or non-functional cross culverts and partial road washouts. Thus, while road construction and maintenance was generally satisfactory, several problems were found in the field.

The most serious violations were:

- Partial or complete road washouts deposited a large amount of sediment off the road.

- Tertiary roads without culverts or cross ditches caused significant volumes of water to pond behind the road bed.

- Damaged culverts due to road grading or poor maintenance.
Waste

_Algonquin_

Field staff did not find any discarded waste.

_Magpie_

Four of the sites investigated contained waste materials left behind by operators. Examples include:

- A discarded 20-gallon pail of hydraulic oil was found in a ditch adjacent to a wetland within 12 meters of a fish-bearing stream.

- An empty one-liter container of motor oil was found in a wetland within 50 meters of a fish-bearing stream.

- An empty grease cartridge was found outside a Moose Aquatic Feeding Area buffer.

Waste is not only an aesthetic concern, but can, depending on the nature of the materials left behind, result in leaking toxic substances. It can also encourage other recreational users of the forest to leave their waste behind.

Discarded pail of hydraulic oil in wetland.
Discussion of Field Results

The results from this audit show that the type of compliance problems discovered in the Algoma (1997) and Lower Spanish (1998/99) audits were not geographically isolated or unique incidents. What remains consistent are the apparent problems in the application and enforcement of forestry standards in Ontario.

A comparison of the results from the previous audits follows. Despite minor differences in methodology, the four audits are generally comparable because of the similar amounts of time invested in fieldwork, the number of sites investigated and the types of investigations completed.

<table>
<thead>
<tr>
<th>Investigation</th>
<th>Algoma</th>
<th>Lower Spanish</th>
<th>Magpie</th>
<th>Algonquin</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOC buffers</td>
<td>39%</td>
<td>34%</td>
<td>18%</td>
<td>35%</td>
</tr>
<tr>
<td>Stream Crossings</td>
<td>61%</td>
<td>64%</td>
<td>53%</td>
<td>39%</td>
</tr>
</tbody>
</table>

Recommendation: Significant efforts need to be made by both MNR and the forestry industry to improve operations and enforcement in order that close to 100% compliance is achieved.

Areas of Concern

Buffer zones (AOCs) left around lakes and streams are important because they reduce erosion and sedimentation into the water body, moderate water temperatures, and provide riparian habitat. The buffer zone requirements are conservative; they are likely close to the minimum amount of protection that would be necessary to preserve ecosystem functions. When these buffers are violated, habitat is lost, erosion can increase, remaining trees become susceptible to blowdown, and access to sensitive fisheries can increase.

In the Magpie Forest, Dubreuil Forest Products Limited (DFPL) was relatively consistent in establishing and protecting its designated AOCs. By comparison, Algonquin Park had twice the number of AOC violations and nearly half of the water-protection AOCs were breached to some degree. The fact that the AOC results for Algonquin Park are similar to the results from the Algoma and Lower Spanish audits is worrisome. Given that Algonquin is the last remaining park that permits logging, and that logging is licensed to a
Crown corporation (the Algonquin Forest Authority [AFA]), forestry practices there should be of the highest standard. The failure to achieve total compliance with minimum forestry rules may jeopardize the ecological health of an area most of the public assumes to be protected.

Only 22% of Algonquin Park is protected from logging through the park’s zoning system. Because logging is so extensive, it is even more important that intact buffers be left around species habitat and feeding areas. Field staff noted that future operations would also likely result in violations. In one case, a buffer had been marked consistently shorter than required in the Forest Management Plan (FMP). Although cutting had not yet taken place, this is a problem because when operators return to harvest the area it is likely that the buffer would be harvested (we have alerted officials to this particular case). It should be noted that comparison of compliance rates between different forest-management units should be done with caution. While it is important to note that significant non-compliance problems occur in all units studied thus far, there are variables which influence compliance rates from unit to unit. Factors that vary amongst forest units, and which may affect compliance rates, include: forest type, silvicultural practices, number and type of water bodies, landforms, soil types, training and skill of operators, degree of inspection and enforcement by MNR, companies’ commitment to compliance, etc. Whatever the causes for the variations, however, overall AOC compliance rates require significant improvement in all areas studied.

**Inadequate Protection of Moose Habitat in Algonquin**

One item of particular concern pertaining to AOCs is Algonquin Park’s treatment of moose habitat. The authors of the Algonquin FMP reason that because partial harvesting systems are used in the park, it is adequate to have a 30-meter reserve around aquatic feeding areas, travel corridors, calving sites and mineral licks, and to allow a selection cut within the next 90 meters of moose habitat. AFA staff state that they do not have detailed knowledge of where moose sites are and, furthermore they claim selection cuts leave enough canopy cover to provide shelter and protection for moose. However, the MNR’s *Timber Management Guidelines for the Provision of Moose Habitat* state that a 120-meter no-harvest reserve should generally be left around aquatic feeding areas, mineral licks and calving sites (with selected removal of conifers only in certain circumstances). The reserves maintain habitat that provides food (early successional plant communities), shelter and protection from predation (semi-mature or mature conifer stands).

![A moose in Algonquin Park.](image)
The consistent use of only a 30-meter waterway reserve within a shelterwood cut (approximately 50% of trees removed) in Algonquin fails to meet the moose guidelines. Furthermore, even if it were true that 30-meter buffers adjacent to shelterwood cuts constituted sufficient habitat for moose, then extra care must be paid to the placement of seed-tree cuts in the park. A seed-tree cut is similar to a clear-cut except operators leave a few trees standing as a seed source to help regenerate the area. The Algonquin FMP states that AOCs protecting waterbodies (which provide moose habitat) should be surrounded by a 30-meter no-cut reserve and a 90-metre modified (shelterwood) zone. In most of the park, the shelterwood or selection prescription is used so the modified reserve is not harvested any differently from the rest of the stand. However, where seed-tree clear-cuts are taking place it is critical that the 90-meter modified zone be marked and implemented if moose habitat is to be protected and the moose guidelines are to be adhered to. We found instances where the 90-meter modified zone was not left intact and a seed-tree cut proceeded too close to waterbodies that provide moose habitat.

A seed-tree cut.

An additional important factor that undermines the justification for deviating from the Moose Guidelines relates to MNR’s “featured species” approach to wildlife habitat protection. In this approach, MNR seeks to manage for many wildlife species by choosing a selected number of indicator species. The habitat needs of these indicator species are provided for according to the theory that a large group of other species will also benefit. Thus, one does not manage moose habitat just to protect moose, but also to protect many other species that use the same habitat. This means that even where there are good numbers of moose present, as in Algonquin Park, this does not justify decreasing the minimum 120-meter buffer since leaving the additional habitat should benefit many other species that may not be as abundant. In short, if MNR is to continue using a “featured species” approach, it should not deviate from the minimum protections set out in its featured species guidelines just because a particular species is already common in a particular area.

In addition, if a region intends to routinely sanction deviation from the general guidelines, the Assistant Deputy Minister’s approval must be obtained in advance of approving the plans. This approval was apparently not obtained for the 1995-2000 plan.

Recommendation: The Algonquin Forestry Authority (AFA) should identify and designate moose habitat AOCs in the FMP and in the field as required by the Moose Guidelines.
Fish and Water Quality Buffers

In the case of sensitive fisheries values, such as self-sustaining trout systems, the buffer zones are critical. Algonquin Park contains the only major complex of intact native trout fisheries remaining in Southern Ontario. However, in Algonquin, eight out of nine AOC violations (see Table 3, page 18) were a threat to fisheries values, and in the Magpie, the results showed three out of five violations (see Table 4, page 19) threatened fisheries.

Both the quantity and quality of fish habitat can be reduced by the impacts of logging. The removal of trees surrounding streams and rivers increases water yield and results in sedimentation and altered nutrient input. Spawning, nursery, feeding and migration areas are all highly dependent on light conditions and water temperatures and incursions into these buffer areas can disrupt the delicate balance.

The AFA should be commended for its practice of establishing a 30-meter buffer around any flowing water encountered in the field, with the assumption that it may be fish bearing. However, its adherence to its own voluntary buffer standard is in need of significant improvement, as this audit shows (see Riparian Reserves section).

Riparian Reserves in Algonquin and Magpie

Water bodies of all sizes are important, because the ecological integrity of watersheds is linked to the health of all tributaries. Logging or disturbance in riparian buffer zones may cut off habitat connections (travel corridors) that wildlife requires to survive and that riparian zones are meant to protect. As well, such logging operations can increase erosion, run-off, stream temperature and adversely impact aquatic habitat. Recent research by MNR has shown that small streams can have high fisheries values and may be vulnerable to harvesting. Research staff feel that “small streams are important fish habitat, and should be given the same level of protection as any other stream.” An independent MNR assessment of the violations uncovered in our Algoma Highlands study also recommended improved protection for small streams.

The results of the Riparian Code investigations in Algonquin and the Magpie Forest were not as alarming as the previous audits in Algoma and the Lower Spanish. In fact, there were twice as many Riparian Code violations in Algoma and the Lower Spanish. However, the types of violations occurring in the Magpie and

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5 Ontario Parks, Algonquin Park Management Plan, 1998, page 33
6 MNR, Timber Management Guidelines for the Protection of Fish Habitat (1988)
7 Personal communication, December 1999. Robert W. Mackereith, Research Scientist, Centre for Northern Forest Ecosystem Research, MNR
8 MNR, EBR investigation of Forestry Practices in Algoma Forest Management Unit, November 1998, page 9 and Appendix 2, page 44
Algonquin audits were similar in nature to those encountered in previous audits. It is highly likely that this is partly due to problems interpreting the code in the field.

The riparian code violations in the Magpie included skidding across a stream and through wetlands, and cutting within the three-meter no-cut zone beside a flowing stream. The most problematic violation in Algonquin involved cutting and dumping within three meters of a wetland.

We feel that the conditions in the Code clearly apply to all waterbodies including wetlands. However, some forestry industry staff have argued that the Riparian Code only applies to flowing water and larger lakes.

Skidding in riparian areas was another problem encountered in Algonquin and the Magpie Forest. In the Magpie, inspectors found evidence that operators had crossed a stream at one point with heavy machinery and had skidded logs through a large wetland. At one site, in Algonquin Park, a skid trail crossed a stream in a voluntary buffer (a 30-meter reserve applied by field operators when water is encountered in the field).

Skidding results in a high degree of soil compaction by heavy equipment in repetitive travel. Run-off of surface water becomes channeled and concentrated, and increased run-off results in accelerated erosion, sedimentation and nutrient loading in watercourses. Skidding can cause site impacts even in areas away from the riparian zone. The AFA acknowledges this problem in the field and has developed their own set of guidelines to reduce its impacts. The AFA's Skidding Guidelines for Algonquin Park is useful for operators faced with different operating conditions.
While the AFA’s skidding guidelines are helpful for site impacts in typical harvesting areas, they do not address the issue in riparian zones, where inspectors discovered some extreme rutting and pooling caused by skid trails.

The MNR’s *Timber Management Guidelines for the Protection of Fish Habitat* recognize that skid trails should be kept away from shorelines to minimize damage from runoff. Field work in the Magpie Forest and Algonquin Park indicated that skidding was kept away from larger streams and lakes, but there is concern that similar care is not being taken with smaller streams and wetlands.

**Recommendation:** The *Riparian Code* should be enforced, and if necessary clarified, to protect water quality during timber operations. The MNR should emphasize that the *Riparian Code* applies to all waterbodies, including those not covered by the *Timber Management Guidelines for the Protection of Fish Habitat* and including those not seen on 1:50,000 scale maps, particularly wetlands and small intermittent streams.

**Road Construction and Stream Crossings in the Magpie Forest**

For the most part, investigators felt that construction techniques, culvert placement, function and maintenance of stream crossings was satisfactory in about half the sites visited in the Magpie Forest. However, the incidence of violations of the MNR guidelines was still too high (53%). Failure of water-crossing structures can have serious consequences in terms of damage to the natural environment. As mentioned earlier in this report, a major road washout directly into a fish-bearing stream was likely the result of poor culvert placement and inadequate size.

The washout probably started some distance from the culvert and migrated toward it. In addition, the culvert at this particular location was obviously undersized to deal with peak flows. These two factors likely contributed to this significant failure and could have been avoided had a larger culvert been placed more strategically.

This road washout illustrates some critical problems with culvert placement and size, and selection of road construction material in the Magpie Forest. The culvert at this location was placed immediately after a meander in the stream channel. As a result, during high flows the stream was washing against the side of the road bed rather than flowing directly into the culvert.
In a number of cases, not limited to this site inspection, material with a high silt content was used in road construction. Also, at this road crossing a large volume of the road-building material had eroded off the road and was deposited in the wetland adjacent to the stream, with significant deposition into the creek itself.

Using silty material in road-crossing construction poses a significant risk as silt is easily eroded, transported by water and is very damaging to both fish and fish habitat. Roads are the most significant source of sediment in these locations. Poor road drainage, unstable fills and improper stream crossings contribute to erosion. Road fill with a higher content of sand and gravel should be used at all road crossings. Given the glacial features in the area, accessing this material should not be a problem.

**Recommendation:** Dubreuil Forest Products Limited should use better quality (i.e. coarser, less erodible) material to construct roads close to stream crossings in order to reduce siltation of water courses.

The magnitude of this wash out was mitigated somewhat by the use of adequate rip rap (a layer of rocks that reduces erosion by slowing the velocity of water flow and filtering sediment) on both sides of the road which prevented failure of the entire road bed and culvert. Adequate or abundant rip rap use was noted in the construction of stream crossings throughout the management unit and is a practice that should continue.

![Images](image.png)

Above: Erosion along steep ditchline in the Magpie Forest. Right: Large excavation and settling pond in the Magpie Forest.

Several settling ponds were encountered in the ditchlines adjacent to stream crossings. These were apparently constructed by DFPL in an attempt to prevent sedimentation of creeks. Investigators felt that this practice was counter-productive. In at least one location, this practice contributed to sedimentation of a fish-bearing stream. Existing vegetation should be left in place as much as possible and the use of hydro-seeding to re-establish ground cover should be considered.
Stream Crossings in Algonquin

The graph on the right compares the stream crossings in Algonquin with those investigated in the Magpie Forest. The quality of construction and impact mitigation of bridges and main crossings was good in Algonquin Park. Investigators observed, in particular, the use of overflow or back-up culverts at many road crossings. These secondary culverts were especially helpful where beaver activity had disrupted the functionality of the first culvert. Most of the crossing problems observed, and there were many (42%), were found at smaller culverts.

**Recommendation:** The AFA’s use of overflow culverts is good and should be adopted by other management units.

Whether or not beavers are the root cause of culverts being blocked, disrupting water flow and fish migration, the *Guidelines for Access Roads and Water Crossings* states that “as long as the beaver is active in the area of the culvert, maintenance will be required.

**Recommendation:** The AFA and DFPL should conduct more frequent inspection and maintenance of culverts at stream crossings.

Road Construction in Algonquin

Since almost all of Algonquin is logged with selective and shelterwood logging methods, each area is repeatedly visited over several years. These harvesting operations require a large system of roads and currently over 2,000 kilometers of permanent all-weather logging roads criss-cross Algonquin’s interior.

Investigators found, on average, one road violation every 9.2 kilometers inspected. If one were to extrapolate that figure to encompass the entire park, one might expect to find 217 violations. The most frequent problem occurred where no culverts were installed resulting in significant flooding on the side of the roads, sometimes causing trees to die. Even more severe were road washouts that discharged heavy sedimentation into waterways. The effects of poor road planning and construction can be avoided if proper construction and maintenance is performed.
One of the negative effects of roads is unauthorized human access. When the road’s original purpose ends, managers can abandon the road either physically or naturally. By abandoning the road, unauthorized access that might eventually lead to over fishing or illegal hunting is restricted.

Investigators observed several sites where physical abandonment had taken place (deliberate acts to render a road unusable e.g. removal of culvert/bridge). The *Environmental Guidelines for Access Roads and Water Crossings* states that “abandonment should be carried out in an environmentally sound manner. Erosion and decay processes can lead to sediment problems in the area of water crossings”. For the most part, investigators were pleased with the AFA’s techniques. However there were a few sites that investigators felt needed more attention. At one location, the banks on either side of the abandoned crossing were not graded to a stable angle of repose and had very high potential for erosion and sedimentation. Investigators felt that the banks should have been appropriately supported to reduce the possibility of erosion, as stated in the environmental guidelines.

![Left: Example of poor physical abandonment. Right: Good example of what a physically abandoned road should look like years later.](image)

The AFA’s effort to address access concerns is commendable and we believe that the practice of physical abandonment of roads should continue. However, the bottom line is that once a road is constructed it is difficult to prevent access. The best alternative will always be to avoid road construction in sensitive areas.

**Recommendation:** The practice of active physical abandonment of roads should continue in an environmentally sound manner, grading sides at a stable angle and providing appropriate structural support.
Cost of Access to Public Information

Summary of our costs to obtain maps and documents related to inspecting forest operations on public lands.

**Algonquia**
Documents (FMP, Maps) $567.70

**Magpie**
Documents (FMP, Maps) $392.82

**Grand Total** $960.52

These costs do not include investigators' salaries or other expenses (fuel, equipment, camping permits, truck rental, etc.).

Obtaining existing information about activities on public land should be free to the public. MNR should make such information available and should require that private agencies do the same.

**Recommendation:** Forest companies should be legally obligated to provide all forest-planning documents (FMPs, maps, air photography, etc.) to the public for no charge or at prices no greater than the cost of reproduction.
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