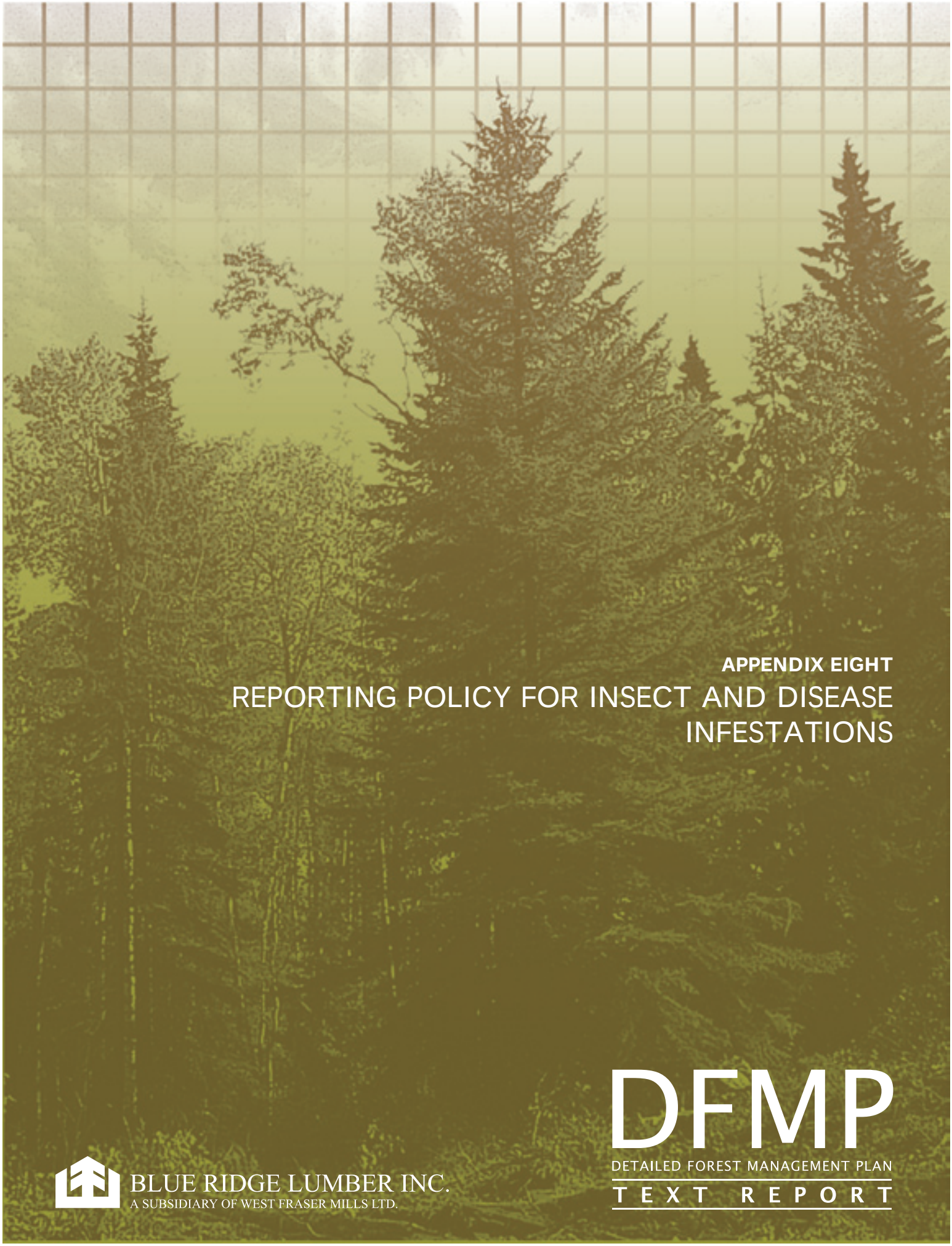

APPENDIX EIGHT

REPORTING POLICY FOR INSECT AND DISEASE INFESTATIONS

BLUE RIDGE LUMBER INC.
A SUBSIDIARY OF WEST FRASER MILLS LTD.

DFMP
DETAILED FOREST MANAGEMENT PLAN
TEXT REPORT

Updated March 15, 2004

BLUE RIDGE LUMBER INC.
REPORTING POLICY
FOR
INSECT AND DISEASE INFESTATIONS

Objective: The objective of this policy is to identify a simple formal process for reporting insects and disease infestations so that they can be identified and controlled by proper planning and management strategies.

Background:

Insects and diseases are always present in the forest, and they play an important role in the biodiversity of forest ecosystems. They are often an important regulator of herbivore populations, are an important food item for vertebrate populations and significantly accelerate the early stages of nutrient cycling and ecosystem development. Controlled populations of Insects and diseases are essential for healthy ecosystem. However, when insect and disease populations increase to infestation levels they must be reported, identified and controlled.

There are numerous Federal, Provincial and industrial agencies that have their own responsibilities for conducting and reporting insect and disease surveys. The Forest Insect and Disease Survey FIDS) unit at the Great Lakes Forestry Centre of the Canadian Forest Service, Natural Resources Canada in Sault Ste. Marie, Ontario and the Alberta Environmental Protection, Land and Forest Service, Forest Management Division is responsible for conducting and reporting insect and disease surveys of the forests of Alberta. The Northern East Slopes Region Hinton office (403) 865-8267 has a local insect and disease protection person who is coordinating a "Regional Committee" for the monitoring and protection of insect and disease infestations.

Blue Ridge Lumber Inc. will continue to cooperate other agencies in the protection against insects and diseases by promptly reporting unusual sightings for identification and monitoring. Blue Ride Lumber has an experience staff of professional field foresters and technicians, who are familiar with the field conditions and are able to report unusual sightings.

A list of the major insects and diseases that are expected to occur within the Blue Ridge Lumber Inc. operating areas are attached for information. The Blue Ridge Lumber Woodlands Library also has a good source of reference books for the identification of insects and diseases. The Canadian Forestry Service Northern Region has an insect and disease identification department. Their address is: 5320 – 122 Street, Edmonton, Alberta T6H 3S5, Phone (403) 435-7210, Fax (403) 435-7359.

Reporting Procedure

Report any "discovered or observed major outbreaks of insects and disease infestations to the Management Forester. In his absence the Operations Forester, Woodlands Manager, or Chief Forester should be advised of all "reported" finds. If possible bring in a sample of the insect or disease for identification. The Management Forester will then contact or inform other necessary agencies if required.

A list of major insects to be found or expected to be found in the Blue Ridge Lumber Inc. FMA

Insect Species	Scientific Name	Hosts	Symptoms or signs
Aspen leafroller	*Pseudexentera oregonana*	Aspen & balsam poplar	Young larvae tunnel into expanding buds and web the expanding leaves together to form a shelter
Bruce spanworm	*Operophtera bruceata*	Aspen , willow & balsam popular	Larvae begin feeding by mining developing aspen buds. Damage appears as holes in the leaves. As the leaves expand the larvae may roll or web the leaves together. Once the entire tree has been eaten there is a silken strand on the tree.
Bud gall mite	*Acer parapopuli*	Aspen & balsam poplar	Causes caulifowerlike galls to form by bud proliferation. Galls are dak green then harden and turn brick red by late summer. Galls are in the lower branches. A persistent infestation could cause a lower branch to die.
Carpetworm	*Prionoxystus robiniae*	Aspen	Eggs are deposited in the crevices and wounds on the trunk or branches. Larvae burrow into the cambrial area and then eventually into the heartwood.
Forest tent caterpillar	*Malacosoma disstria*	Aspen	Grayish egg bands on the twigs. Black hairy, green larvae feed on opening buds then later on the leaves. Larvae do not roll or tie the leaves together. Defoilation begins from the outside in and from the top of the crown down.
Gray willow leaf beetle	*Tricholochumaea decora*	Aspen & willow	Larvae eat all the epidermis and veins giving the trees a scorched brown appearance.
Jack pine budworm	*Choristoneura pinus*	Jack & lodgepole pine & black spruce	Larvae begins mining pollen cone buds in late May, get frass and silken webbing among the mined cone buds. Larvae extend there feeding tunnels along the developing shoots and seed cones. Tree crowns will appear reddish brown and have a scorched appearance.
Larch sawfly	*Pristiphora erichsonii*	Larch	In the spring eggs are laid in the new terminal twigs. Twigs then curl. Larvae feed on the new needles. Very few needles are left uneaten and very little frass is left behind. An attacked tree has a very visible stark appearance.
Large aspen tortrix	*Choristoneura conflictana*	Aspen	Larvae begin mining buds in early spring. Larvae will continue to feed within rolled leaves or two or more leaves are pulled together and secured with a silken webbing. Leaves have a clumped irregular appearance. With populations there is a silk is produced and is in the trees or ground vegetation.
Leaf miner	*Profenusa thomsoni*	Birch	Small, light green or gray spots appear on the leaves where eggs where deposited. As the eggs hatch the larvae begin to feed and the spots become larger and eventually the whole leaf can be effected.
Lodgepole terminal weevil	*Pissodes terminalis*	Lodgepole & jack pine	First silgn of attack causes resin bleeding on the current years growth. Infested terminals start to curl and fade to either yellowish or red brown depending on the species.

Insect Species	Scientific Name	Hosts	Symptoms or signs
Mountain pine beetle	*Dendroctonus ponderosae*	Lodgepole pine	Beedle and blue stain work together to kill the tree. Blue fungi is believed to stop water transport in the tree and this kills the tree. Beetles bore into the bark and galleries have a longervertical section and very short basal sections. Dtrunks of tree are reddish brown because of the woodpeckers.
Northern pith twig moth	*Petrova albicapitana*	Lodgepole & jack pine	Larvae bore into twigs, shoots, branches and stems and construct blisters of resin. larvae feed in the blisters and girdle the stem and this results in discloration. Blisters usually have white surface of rough edges.
Pine engraver	*Ips pini*	Lodgepole & jack pine	Bore through the bark into the phloem and sawdust accumulates accumuates at the base of the tree. Egg galleries consist of one central nuptial chamber with two to five radial galleries
Poplar borer	*Saperda calcarata*	Aspen	A varnish like resin flows down the stem and stains the bark. Resin comes from wounds in the bark from borrowing insects. Galleries are in the bark and wood.
Spruce beetle	*Dendroctonus rufipennis*	White spruce	Entry holes into the bark at the lower stem of the trees and boring dust is accumulated. Larvae feeding disrupt the phloem transport system thereby girdling the tree. Galleries follow the grain of the wood.
Spruce bud midge	*Rhabdophaga swainei*	White & black spruce	Larvae kill the terminla buds of leaders and branches. Infested buds are usually fatter and wider at the apex. Dead buds compete for dominance and often multiple leaders are developed.
Spruce budworm	*Choristoneura fumiferana*	White spruce & balsam fir	Larvae feed on the buds in the spring and then start to feed on the shoots. Branch tips have silken webbing to protect the larvae during feeding. By mid summer the tops of the trees appear to be rust brown because of the dead needles, frass and dead buds.
Spruce gall adelgid	*Adelges lariciatus*	White spruce	Cone shaped galls are formed in the spring. Adelgids feed on the sap and the galls turn a reddish purple.
Warren's rootcollar weevil	Hylobius warreni	Lodgepole pine	Feed on phloem in the root collar. Resin flowing from damaged bark mixes with soil to form a hard white crust over the feeding area.
White pine weevil	*Pissodes strobi*	Jack pine, white & black spruce	Resin oozes from punctures caused by adults inserting their mouth parts into the phloem. The leader is girdled and the current growth is wilted.
Whitespotted sawyer beetle	*Monochamus scutellatus*	Pine, spruce & balsam fir	Fly around dead trees and logs. Score the surface of the wood and have oval shaped entance holes in the wood. Larvae feed in the phloem.
Yellow-headed spruce sawfly	*Pikonema alaskensis*	White & black spruce	Start feeding on newer then move to older needles. Concentrate on the upper crown. Once feeding is complete the needles have a ragged appearance.

A list of major diseases to be found or expected to be found in the Blue Ridge Lumber Inc.

Disease Species	Scientific Name of Fungi	Hosts	Symptoms or signs
Armillaria root disease	*Armillaria ostoyae*	Lodgepole & jack pine, white & black spruce	Yellowish green to reddish brown discloration of foliage over the entire tree, and loss of growth and resioous around the root collar. Typical signs of white, radiating mycelial fans formed between the bark and the wood of the infected trees.
Atropelius canker	*Atropellis piniphilia*	Lodgepole pine	First external symptom is resin on the outside of the bark, and as the canker increases the resin flow increases. Can kill small trees.
Aspen decay	*Phellinus tremulae*	Aspen	This fungi prefers the heartwood and some sapwood and has brown stain or rot that has some some dark line border between the heartwood and sapwood.
Aspen decay	*Peniophora polygonia*	Aspen & balsam poplar	This fungi prefers the heartwood and has brown to a light reddish brown rot.
Hypoxlon canker	*Hypoxlon mammatum*	Aspen	Starts as a sunken yellowish orange area on the stem. Canker will eventually girdle stem.
Jack pine needle cast		Lodgepole pine	Dark brown ellipsoids on needles bordered with orange-brown bands.
Lodgepole pine dwarf mistletoe	*Arceuthobium americanum*	Lodgepole pine, jack pine & white spruce	Most conspicious symptom is the production of witches broom. Size and shape of the brooms depends on tree host species, and the age and postion of the infection. Mistletoe is a diotic parasitic flowering plant.
Pine needle cast	*Lophodermella concolor*	Lodgepole pine	Straw colored needles tapering towards a green base.
Pine stem rust	*Cronartium coleosporiodes*	Lodgepole & jack pine	Common alternate host is the Indian paint brush. Stalactiform blister rust on small stems is a slight swelling of the bark. Cankers spread longitudinally. Most mortality occurs amongst samplings whose major stems are killed by girdling.
Ring rot	*Phellinus pini*	All conifer species	Commonly called the red rilng rot fungus. Decays the wood of roots, butts and trunks.
Silverleaf	*Chondrostereum purpureum*	Poplar, birch & willow	Leaves are silvery or leaden luster, leaf margins become brown & small shelf like, mult layered, fruiting bodies appear on the stem.
Spruce cone rust	*Chrysonyxa pirolata*	White & black spruce	The rust changes the colors of healthy cones to a premature brown color. Orange yellow spore are produced on diseased cones.
Spruce needle rust	*Chrysomyxa ledicola*	White & black spruce	Slight discloration of the needles. Needles have small dotlike sexual fruiting bodies which produce a orange-yellow powder. Infected needles drop prematurely.
Venturia leaf and shoot blight	*Venturia macularis*	Aspen	Leaf spot disease.
Western gall rust	Lodgepole pine	Lodgepole & jack pine	Western gall rust induces conspicious perennial globose galls on the stems or pines. Gall rust are caused by xylem swellings.