United States Department of Agriculture | Forest Service | Alaska Region
Tongass National Forest
Sitka Ranger District

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File Code: 2770
Date: January 13, 2011

Christopher Brewton
Utility Director
City and Borough of Sitka--Electric Department
105 Jarvis Street
Sitka, AK 99835

RE: Blue Lake Hydroelectric Project (FERC No. 2230) Expansion, USDA Forest Service, Tongass National Forest, Sitka Ranger District, Comments on October 2010 Draft Sediment and Erosion Control Plan

Dear Mr. Brewton:

We reviewed the Draft Sediment and Erosion Control Plan and offer the following comments.

General Comments
We suggest adding a table of comments to make this document easier to read.

Although beyond the scope of this Plan, the City should consider a detailed plan regarding spill prevention and countermeasures for hazardous materials (petroleum products, chemicals, etc.) in the vicinity of the reservoir, equipment refueling and maintenance locations, etc.

Silt fences require periodic inspection for accumulated silt, which may require hand removal and disposal at approved locations. When an area has stabilized, the silt fences should be removed, but care taken to either revegetate or remove accumulated silt.

Prior to any spoils being transported and deposited at the campground or Green Lake Road site they should be inspected for invasive species. Enclosed are two documents that describe Forest Service guidelines for preventing the spread of invasive species and seeding. A Weed Risk Assessment is needed for this project to help the City and the Forest Service ensure that best management practices are employed.

The subsequent comments are numbered following the Plan section numbers.

2.2 PROPOSED CONSTRUCTION SCHEDULE

Page 2 - Based on the construction dates we recommend a discussion on what measures will be used for snow removal and storage. De-icing chemicals should not be used in vicinity of Blue Lake.

Work outside the growing season of September through the winter may require special consideration of immediate erosion control measures until seed can be applied.

3.1.3 Sawmill Creek Industrial Park (SCIP) Spoils Disposal and Processing Area
Is this site covered by a National Pollutant Discharge Elimination System (NPDES) permit and does the NPDES include rock and concrete processing and spoils disposal activities?

3.2 BEST MANAGEMENT PRACTICES
Page 4 – We will email you the current version of the Soil and Water Conservation Handbook, FSH 2509.22, effective July 14, 2006. The Timber Sale Contract will incorporate several of the Timber Management BMPs, beginning on page 58 of 117.

First bullet – The Forest Service has a standard seed/fertilizer mix that should be applied to exposed mineral soils (especially near surface waters). See attached Facts about Seeding for Erosion Control, Tongass National Forest.

Third bullet – The use of straw bales is discouraged due to their potential as sources of invasive weed seed. We recommend other options unless certified weed free straw is available.

Fifth bullet – A simple monitoring plan is needed to identify how and where data will be collected and how results will be reported and used.

Sixth bullet – This is not an accurate statement, suggest removal.

4.0 PROPOSED MEASURES by PROJECT CONSTRUCTION AREA
Page 5 - Advocate the activities at the head of the lake be identified in the bulleted list as the Timber Removal Area where erosion and sediment control measures will be implemented. Outline the sediment control measures in its own section, separate from site disturbing activities such as felling, bucking, skidding, yarding, loading and hauling.

4.1.2 Dam Site Construction Staging Area Work Area
Page 8, second paragraph – Identify on Figure 3 the approximately 0.5 acre to be revegetated.

4.2.2 Erosion and Sediment Control
Page 11 - The last sentence in this section is a little confusing. Silt fences are not intended to be used and will not be effective in flowing water.

4.3.2 Erosion and Sediment Control
Page 14, first paragraph, second sentence – You will probably still need to apply spot seed/fertilizer to minimize surface erosion immediately after disturbance.

Page 14, second paragraph, second sentence - Reads in part "... and to filter the water before it enters the campground." This again is confusing, is the plan to place the silt fencing in flowing water or is this just describing storm or snowmelt related dispersed runoff?

4.4.1 Surge Chamber Work Area
Page 14, last sentence - Without knowing what the organic material is it is difficult to determine if this is a reasonable idea or not. You should consider seed/fertilizer application for immediate revegetation of disturbed areas.

Thank you for allowing us additional time to submit our comments. Please contact me at 747-4218 or cgoularte@fs.fed.us , or Melissa Dinsmore, Lands Specialist, at mdinsmore@fs.fed.us or 747-4201, if you have questions concerning this submittal.

Sincerely,

Carol A Goularte

CAROL A. GOULARTE
District Ranger

cc: Dean Orbison, City Electrical Engineer

Facts about Seeding for Erosion Control, Tongass National Forest

- The objective of seeding is to establish groundcover to minimize surface erosion from disturbed soil.

- Seeding has long been standard procedure for road construction and all other ground-disturbing projects. It is the most cost-effective erosion control practice available. (See FSH 2509.22 R10 BMPs 12.17, 14.5, 14.8, 14.20, 14.24, 14.25 for specific references to seeding).

- The 2008 Tongass Forest Plan Invasive Species Standards and Guidelines and Tongass NF Invasive Plant Management Supplement (FSM 2080 R10 TNF 2000-2007-1) provide policy for minimizing spread of invasive species. A Line Officer may determine, on a project level basis, that erosion control using standard seeding specification (see below) comprises an unacceptable risk for spreading invasive plants. This determination must be documented for the project, and alternative erosion control measures must be approved.

- The Tongass National Forest has a standard seed mix and fertilizer application rate that is compatible with invasive plant policy. It includes non-native, non-invasive seed varieties that are known to grow well in SE AK:

Apply seed and fertilizer to disturbed areas between April 15 and September 15.

Kind of Seed	Quantity of Pure Live Seed (Lbs/Acre)
1. Boreal Red Fescue*	10
2. Annual Ryegrass	10
3. Arctared Fescue*	5
Total	25

* If either Boreal red fescue or Arctared fescue are unavailable, Fawn Tall fescue may be substituted. If Fawn Tall Fescue is unavailable, then the amounts of the available two may be adjusted to total 100%. **Seed mixture contains no more than 0.01% other seed, whether identified or not.**

Fertilizer shall be applied at a rate of 200 pounds of 10-20-10 fertilizer plus 100 pounds of urea per acre in all applications.

- Seeding is most successful if completed by mid-June, to ensure that ground cover is established before heavy fall rains and frost. If seeding cannot be completed prior to September 15, or appears unsuccessful by that time, other erosion control measures must be applied to disturbed areas near surface waters before heavy fall rains and frost.

- Several studies conducted in the Tongass NF support the fact that seeding, when correctly applied, is effective in reducing surface erosion. (See Wilson 1965, Landwehr and Krosse 2001, and Landwehr et al 1997 on our fsweb)

- There are some situations that may require structural erosion control measures in addition to seeding. These include:
  - Excavation of fluid road subgrade materials during culvert removal
  - Over-steepened slopes
  - Riparian and streambank disturbance during structure removal or watershed restoration work
  - Wetland disturbance

- Other erosion control measures, often more expensive than seeding, include:
  - Mulch (alder leaves, branches, slash, wood chips)
  - Natural fiber (coconut, jute, etc) mats or logs
  - Silt fencing, ditch dams, sediment retention devices (these usually require hand maintenance to remove collected sediment)
    - Note: straw bales used as sediment traps must be "weed-free". See FSM 2080 R10 TNF 2000-2007-1.
  - Rock walls

- If fertilizer is applied correctly, there is generally no concern for water quality impacts. Case-by-case, if eutrophication is a nearby concern, alternative erosion control measures can be applied.

- Alder and willow fascines have successfully accelerated recovery of permanent vegetation along streambanks, but are generally not acceptable as an immediate source of groundcover or substitute for erosion control seeding. Wetlands plant 'plugs' have also been successful in restoring natural vegetation to disturbed wetland areas.

- Currently, the cost of native seed is prohibitively high, but could be collected by hand on-site for special projects, case-by-case. Identification of the need for native plant materials must be accomplished in project erosion control plans one to three years prior to project implementation, depending on the types and sources of native materials needed.

Patti Krosse,	Dennis Landwehr,	Julianne Thompson,
Ecologist	Soil Scientist	Hydrologist

FOREST SERVICE HANDBOOK
TONGASS NATIONAL FOREST
KETCHIKAN, ALASKA

FSM 2000 - NATIONAL FOREST RESOURCE MANAGEMENT

CHAPTER 2080 - NOXIOUS WEED MANAGMENT

Supplement No.: R10 TNF – 2000-2007-1

Effective Date: October 19, 2007

Duration: This supplement is effective until superseded or removed.

/s/ OLLEKE RAPPE-DANIELS **Date Approved:** October 19, 2007
Approved: FORREST COLE
Forest Supervisor

Posting Instructions: Supplements are numbered consecutively by Manual number and calendar year. Post by document; remove the entire document and replace it with this supplement. Retain this transmittal as the first page(s) of this document.

New Document	2080	20 Pages
Superseded Document(s) by Issuance Number and Effective Date	None	

Digest: In order by code, summarize the main additions, revisions, or removal of direction incorporated in this supplement.

2081.2	Implements an Integrated Pest Management approach for management of invasive plants on the Tongass National Forest.	4 Pages
Exhibit 1	Procedure for conducting risk assessments for ground-disturbing activities.	2 Pages
Exhibit 2	Guidelines for revegetating disturbed sites on the Tongass National Forest.	2 Pages
Exhibit 3	Tongass National Forest High Priority Invasive Plants.	1 Page
Exhibit 4	Blank Risk Assessment Form.	

Exhibit 5	Risk Assessment Figure.	
Note: This supplement will be periodically updated to reflect current forest wide procedures.		n/a

01 – AUTHORITY. See FSM 2080 for authorities related to Invasive Plant Management.

02 – OBJECTIVES. To provide an integrated pest management approach for managing invasive plants on the Tongass National Forest.

03 – POLICY. For policy pertaining to invasive plant management, see FSM 2080.

05 – DEFINITIONS.

1) "Alien plant" means, with respect to a particular ecosystem, any species, including its seeds or other biological material capable of propagating that species, which is not native to that ecosystem.

2) "Control" means, as appropriate, eradicating, suppressing, reducing , or managing invasive plant populations, preventing spread of invasive plants from areas where they are present, and taking steps such as restoration of native species and habitats to reduce the effects of invasive plants and to prevent further invasions.

3) "Ecosystem" means the complex of a community of organisms and its environment.

4) "Introduction" means the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.

5) "Invasive plant" means an alien plant whose introduction does or is likely to cause economic or environmental harm or harm to human health (adapted from Executive Order 13112, which defines invasive species).

6) "Noxious Weed" means those plant species designated as noxious weeds by Federal or State law. Noxious weeds generally possess one or more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host of serious insects or disease, and generally non-native.

7) "Native Species" means, with respect to a particular ecosystem, as species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

2081.0 – Introduction

There are many laws, regulations, and policies that provide direction for invasive plant management. For the purpose of this supplement, this discussion will focus on Forest Service Manual 2080 (1995), Noxious Weed Management, and Executive Order 13112 (1999), Invasive Species. Forest Service Manual 2080 predates Executive Order 13112, and addresses only noxious weeds, which are designated by Federal or State law. Alaska's Prohibited and Noxious Weed regulations contain only a handful of species and apply to noxious weed seeds only (11 AAC 34.020). Executive Order 13112, Invasive Species, addresses a broader group of not only plants, but other taxa as well. An invasive species is one whose introduction does or is likely to cause economic or environmental harm or harm to human health. Specifically, EO 13112 directs all Federal agencies to address the impacts their actions may have on invasive species:

> **Sec. 2.** *Federal Agency Duties.* (a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,
> (1) identify such actions;
> (2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

This is the most current direction we have for invasive plant management. Our Forest direction in invasive plant management in the Forest Plan and in this supplement strives to meet the purpose and intent of EO 13112.

In deciding what plants qualify as "invasive", the Alaska Natural Heritage Program's (ANHP) Weed Ranking Project results were used (**http://akweeds.uaa.alaska.edu/akweeds_ranking_page.htm**). The ranking process takes into account documentation of each plant species, including climatic comparison of Alaska's climates to climates where the plant is known to thrive, biological characteristics and dispersal ability of the plant, the plant's distribution, and feasibility of control. Plants are then ranked on a scale of 0-100, 100 having the highest invasiveness rank.

The Tongass National Forest High Priority Invasive Plant Species List (see Exhibit 3) is a list of plants that we are actively controlling across the Forest. We used the Weed Ranking Project results (see description above). Generally speaking, a plant with a ranking higher than 60 is a

high priority plant for control; however, there are a few exceptions. *Phalaris arundinacea* (reed canary grass) is well established, and eradication would be impossible to achieve, so it is not a high priority plant for control, despite the fact that it has a very high invasiveness ranking of 83. Likewise, *Taraxucum officinale* (common dandelion) is well established, and therefore would not be a high priority plant, even though it has a relatively high invasiveness ranking of 62. Also, we are actively controlling some plants that have not yet been ranked for the state of Alaska.

2081.2 – Prevention and Control Measures.

1. Measures common to all resource groups.
    a. Management Considerations and Associated Practices.
        i. Include invasive plant risk assessment[1] in environmental analysis for any ground disturbing activity. Examples include (but are not limited to) road construction, reconstruction, decommissioning, storage, trail construction, timber harvest projects, watershed restoration projects, and minerals projects. See Exhibit 1 for procedure.
        ii. Revegetate bare soil resulting from project activity if prompt natural regeneration is not expected. Use native material when available. See current seeding guidelines (Exhibit 2) for detailed procedures and appropriate mixes.
        iii. All gravel, soil, and borrow material taken from existing pits (including commercial sources) should be inspected, treated if necessary, and approved[2] before use or sale.
        iv. When possible, inspect areas where gravel or other materials (including seed) have been imported for 2-3 years afterwards to ensure no invasive plants are present. See item number 10 in Exhibit 1.
        v. Provide invasive plant identification training to all field-going staff including seasonal employees and volunteers.
        vi. Look for high priority invasive plants while out in the field, and report any findings to the locally designated invasive species coordinator.
        vii. Use coconut fiber matting for erosion control as an alternative to straw bales when available and practical.

2. Transportation.
    a. Management Considerations and Associated Practices.
        i. Review Management Considerations common to all resource groups (number 1) above.
        ii. Avoid spread of invasive plants during construction, maintenance, reconstruction, and decommissioning activities.
            1. Implement the findings of the risk assessment.

[1] Risk Assessments should be prepared by an individual who is proficient in invasive plant management.
[2] Inspection and approval should be performed by an individual who is proficient in invasive plant management.

2. Use current seeding guidelines for detailed procedures and appropriate mixes (see Exhibit 2).
3. In all ground-disturbing projects, existing infestations of high priority invasive plants should be treated before the road is made impassable.

iii. Avoid spread of invasive plants during road maintenance activities (pre and post haul maintenance).

1. During road condition surveys, look for high priority invasive plants and report any findings to the district and/or forest invasive species coordinator.
2. When feasible, treat high priority infestations prior to maintenance activities.
3. If treatment of high priority plants is not feasible prior to maintenance activities, strive to work from relatively invasive plant-free areas into the infested area, rather than vice-versa.
4. When feasible, avoid ditch maintenance activities when invasive plants are in flowering or seed stage (generally July-September).
5. Areas with high priority plants needing treatment or avoidance should be described in the contract and flagged prior to activities.

iv. Avoid spreading invasive plants by ensuring road materials are free of invasive plant seeds and/or parts.

1. Consider using wood chips to build temporary roads as an alternative to shot rock roads.

3. Vegetation Management

a. Management Considerations and Associated Practices.

i. Review Management Considerations common to all resource groups (number 1) above.

ii. Examine invasive plant prevention and treatment needs.

1. Minimize the movement of existing and new non-native plant species caused by hauling infested gravel and fill. Borrow pits should not be used if invasive plants of concern, defined by the Forest or District invasive species coordinator, are found on site, unless the infestation(s) can be appropriately treated prior to use. Environmental analysis should include effects of developing new rock sources versus treatment of infested rock sources.
2. If feasible, treat high priority invasive plants along existing access roads within the area of operation before equipment moves into new or existing timber sale operations. Treated sites should be re-seeded with desirable species and/or mulched promptly after treatment to help prevent invasive plant establishment. See Exhibit 2 for seed mix recommendations.

3. Avoid placement of landings in invasive plant- infested areas, or treat known sites prior to construction.
4. When appropriate, collect K/V funds to prevent, monitor, and treat invasive plants as needed during or after harvest or regeneration activities.

4. Recreation, Wilderness, Roadless Areas.
   a. Management Considerations and Associated Practices.
      i. Review Management Considerations common to all resource groups (number 1) above.
      ii. Encourage invasive plant awareness and prevention efforts among forest users, including outfitter-guides.
         1. Provide invasive plant education to outfitter-guides, for example, explaining the importance of checking clothing and equipment for any hitchhiking seeds in town, prior to entering NFS lands.
         2. Consider using education programs to increase public awareness, including the use of brochures/signs in areas of active invasive plant management.
         3. Encourage outfitter/guides to wash their vehicles in town before moving to a remote road system.
      iii. Prevent invasive plant establishment during trail construction, reconstruction, and maintenance activities.
         1. Seed only when necessary at backcountry sites to minimize introduction of nonnative species. Use native seed material when available. When possible, monitor seeded areas for 2-3 years afterwards. Use current seeding guidelines for detailed procedures and appropriate mixes (see Exhibit 2), including the use of native plant materials.
      iv. Incorporate invasive plant prevention and treatment in Special Use Permits.
         1. At time of issuance or amendment of Special Use Permits, include invasive plant prevention and/or control clauses as applicable.
5. Wildlife, Fisheries, Watershed, and Botany.
   a. Management Considerations and Associated Practices
      i. Review Management Considerations common to all resource groups (number 1) above.

6. Minerals (including saleable minerals)
   a. Management Considerations and Associated Practices
      i. Review Management Considerations common to all resource groups (number 1) above.
      ii. Minimize chances of invasive plant establishment in ground-disturbing mining operations, including decommissioning.

1. At time of issuance or amendment of mining plans of operation, include invasive plant prevention measures and control clauses, if applicable. As practical, incorporate invasive plant risk assessment results in rockpit plans.

iii. Prevent introduction of invasive plants into uninfested areas.

1. Before equipment moves into new or existing mining operations, treat invasive plants along existing access roads within the area of operation. Treated sites should be re-seeded with desirable species and/or mulched promptly after treatment.

Exhibit 1. Procedure for conducting risk assessments for ground-disturbing activities.
Introduction and Background—need for conducting and documenting invasive plant risk assessments.

Forest Service Manual 2080 Noxious Weed Management (effective 11/29/1995) includes a policy statement calling for a risk assessment for noxious weeds to be completed for every project involving ground-disturbing activities. As stated above in section 2081.0, General Background, our Forest direction in invasive plant management in the Forest Plan and in this supplement strives to meet the purpose and intent of Executive Order 13112, Invasive Species. Thus, the Tongass has chosen to include both noxious weeds and invasive plants in the risk assessment.

Specifically, FSM 2080 states:

2081.03 Policy. *When any ground disturbing action or activity is proposed, determine the risk of introducing or spreading noxious weeds associated with the proposed action.*

1. For projects having moderate to high risk of introducing or spreading noxious weeds, the project decision document must identify noxious weed control measures that must be undertaken during project implementation.

2. Make every effort to ensure that all seed, feed, hay, and straw used on National Forest System lands is free of noxious weed seeds (FSH 6309.12, sec. 42 and 42.1).

3. Where States have enacted legislation and have an active program to make weed-free forage available, Forest Officers shall issue orders restricting the transport of feed, hay, straw, or mulch which is not declared as weed-free, as provided in 36 CFR 261.50(a) and 261.58(t).

4. Use contract and permit clauses to prevent the introduction or spread of noxious weeds by contractors and permittees. For example, where determined to be appropriate, use clauses requiring contractors or permittees to clean their equipment prior to entering National Forest System lands.

2081.2 Prevention and Control Measures. Determine the factors, which favor establishment and spread of noxious weeds and design management practices or prescriptions to reduce risk of infestation or spread of noxious weeds.

Where funds and other resources do not permit undertaking all desired measures, address and schedule noxious weed prevention and control in the following order:

1. First Priority: Prevent the introduction of new invaders,
2. Second Priority: Conduct early treatment of new infestations, and
3. Third Priority: Contain and control established infestations.

What to include in the Risk Assessment.
See Exhibit 4 for a blank form, and Exhibit 5 for a conceptual figure to aid in completing the risk assessment.

1. Cover Page.
-Document Title ("Invasive Plant Risk Assessment")
-Project Name
-District Name
-Signature element for preparer, preparer's name typed or printed, preparer's title and date prepared.
-Signature element for reviewer, if appropriate, reviewer's title and date reviewed.

2. Introduction.
This section contains standard wording discussing Forest Service authorities, Forest service definition of noxious weeds, definition of invasive plants, and brief description of the Alaska Natural Heritage Program's Weed Ranking Project and how the rankings were derived (http://akweeds.uaa.alaska.edu/akweeds_ranking_page.htm).

3. Project Location and Description.
Identify the location(s) of the project activities. Include a physical description of the location(s).

Describe all of the activities planned in the project, including all ground disturbing activities. Include site-specific prescriptions, were possible.

4. Inventory.
Briefly discuss *when* the inventory was conducted (month, year). List the invasive plants found, their ANHP rankings, how many infestations, and their location relative to the project.

5. Known Invasive Plants.
Identify and discuss the invasive plants in the vicinity of the project other than those discovered during inventory. Discuss the proximity to the project area. Discuss any eradication measures being employed against these infestations.

Identify the level of risk incurred according to the *invasive plants' proximity, invasiveness, etc.* (No other known invasive plants in the vicinity might result in a "low" risk. Highly invasive plants adjacent to the project area might result in a "high" risk).

6. Habitat Vulnerability.
Habitat vulnerability is a review and discussion of the current (pre-project) site-specific factors present in the project area, which would make the project area vulnerable or resistant to invasive plant infestation. A given project may have low risk areas as well as high-risk areas.

Identify the level of risk incurred according to the *current factors.*
Examples of possible "low risk" areas:

- Currently roadless, undisturbed area
- Area that was previously disturbed, but now has revegetated with red alder

Examples of possible "high risk" areas:

- A site mostly occupied by graminoids, including wetland types such as beaver ponds, tall sedge fens that may be particularly vulnerable to reed canary grass infestation.

7. Non-project Weed Vectors.
Briefly list the vectors present in the project area. Examples include existing roads, trails, traffic flow, etc.

Identify the level of risk incurred according to the *current vectors.*

8. Habitat Alteration Expected as Result of Project.
Describe the changes expected in the project area as a result of the project. Discuss in terms of short-term disturbances and long-term alterations. Discuss any long-term or chronic disturbances and changes in invasive plant habitat expected as the result of maintenance activities. Consider road building, recreation use, and other disturbances.

Identify the levels of risks incurred according to the amount of disturbance through the short-term and long-term, and any long-term habitat alterations.

9. Increased Vectors as a Result of Project Implementation.
Briefly list and discuss the vectors, which might result from implementation of the project. Include the project-related activities and equipment, which might vector weeds. If utilization by current vectors might increase, include a discussion of that here.

Identify the levels of risks incurred according to the increased or newly introduced vectors as a result of the project.

10. Management Considerations/Mitigation and Monitoring.
List the actions recommended to prevent the introduction or spread of invasive plants. Include recommendations for preventing the spread of known invasive plants within or adjacent to the project area and for preventing the transport or spread of known invasive plants from within to outside the project area.

Also include recommendations for control measures of the known invasive plants or new infestations of invasive plants within the project area. NOTE: if control measures would include the use of herbicides or ground disturbance such as in digging, a NEPA-compliant environmental analysis would be needed before such measures could be implemented.

Identify the levels of risks incurred according to the level *of confidence in the efficacy of the actions*, with the assumption that the actions would be implemented, as written.

11. Anticipated Response of invasive plants to Proposed Actions.
Considering all of the information in the risk assessment *including the management considerations*, discuss the expected outcome of the project with respect to the level of risk of invasive plant introduction and spread.

Considering all of the information in the risk assessment, but ***excluding*** *the management considerations* (the decision maker can decide to eliminate all or some of them), discuss the outcome of the project with respect to the level of risk of invasive plant introduction and spread.

12. References.
List all cited and reviewed references. Personal Communications must be cited separately from literature citations. The contact information for the personal communications source must be given.

13. Appendix.
Attach the Forest High Priority Invasive Plant list.

Attach maps of infestations relative to the project.

Exhibit 2. Guidelines for revegetating disturbed sites on the Tongass National Forest.

File Code: 2500/2600/2080 Date: July 28, 2006

Route To:

Subject: Revegetating Disturbed Sites on the Tongass National Forest

To: Tongass Leadership Team

Emerging Forest Service policy regarding revegetation of disturbed sites states that "native plant materials will be the first choice in revegetation for restoration and rehabilitation of native ecosystems where timely regeneration of the native plant community will not occur" (draft FSM 2070, June, 2006). While we have made strides in developing native seed sources, there are still no known commercial nurseries that supply seed materials native to Southeast Alaska at this time. Tongass N.F. ecology and botany specialists continue to work on the development of commercially available native seed through the Forest's Native Seed Program. Until native seed materials become commercially available, revegetation projects should use the guidance outlined below.

Native Plants

1. Use native plant materials derived from wild collections for small-scale (10 acres or less) projects including, but not limited to, trails, recreation sites, and riparian and wetland revegetation projects. **This guidance is especially important when projects occur within wilderness, remote, semi-remote or roadless LUDs.**

2. Consult the Forest Ecology department for a list of available native seed materials and recommendations for planting.

Non-native Plants

1. When available, use the following non-native seed mixture for large-scale projects (greater than 10 acres):

40% Annual ryegrass (*Lolium perenne* ssp. *multiflorum* (Lam.) Husnot) (10 lbs)
40% Boreal red fescue (*Festuca rubra*, Boreal variety) (10 lbs)
20% Arctared fescue (*Festuca rubra*, Arctared variety) (5 lbs)
Application rate for this mixture is 25 lbs/acre (28 kg/ha), unless otherwise stated.

Seed mixture contains no more than 0.01% other seed, whether identified or not. This is meant to reduce the risk of introducing invasive plants.

Fertilizer: 300 lbs/acre (340 kg/ha) total, with the following chemical analysis:
10-20-10 (10% Nitrogen, 20% Phosphorus, and 10% Potassium): 200 lbs/acre (225 kg/ha)
46-0-0 (Nitrogen Urea): 100 lbs/acre (110 kg/ha)
Unless otherwise specified by a Forest ecologist or Forest soil scientist, seeding should occur between May 15 and September 15 to ensure adequate establishment during the growing season.

2. Other non-native seeds that may be used in place of any of the above species are listed below:
   a. If either Boreal red fescue or Arctared fescue are unavailable, Fawn Tall fescue (*Festuca arundinacea*) may be substituted. If Fawn Tall Fescue is unavailable, then the amounts of the available two may be adjusted to total 100%.

   b. Please consult with the Forest Ecologist or Botanist for information on any species of interest not listed above.

3. For situations where short-term revegetation is needed, but where native plant materials will either invade naturally or will be planted within one to two years, use annual ryegrass (*Lolium perenne* ssp. *multiflorum* (Lam.) Husnot) (25 lbs/ac. or 28 kg/ha).

Please use the above guidance to help determine the best revegetation techniques for your specific project. While we are actively trying to prevent introduced plants from becoming invasive, we still have the need to stabilize our soils for erosion control; using non-native plants is one of our only options at this time. Where there is high likelihood of natural regeneration, which will meet management objectives, we suggest no seeding be done, or using the options outlined in number 3 above. Consult a Forest soil scientist for prioritizing seeding of landslides.

I appreciate your understanding and participation in the changes that are taking place in the field of watershed protection. Again, I would like to emphasize that contracts will need to be revised with this new guidance. ***Please ensure all contracts having seeding specifications use the above information.*** If you have any questions on this information, please direct your calls to Patti Krosse at (907) 228-6272 or Pam Fletcher at (907) 228-6206.

/s/ Forrest Cole
FORREST COLE
Forest Supervisor

Exhibit 3. Tongass National Forest High Priority Invasive Plants.

Scientific Name	Common Name	Rank 0-100 (low-high)[1]
High Priority Invasive Plants--actively controlling these plants where feasible		
Alliara petiolata (Bieb.) Cavara & Grande	garlic mustard	70
Centaurea biebersteinii DC	spotted knapweed	86
Cirsium arvensis L. Scop.	Canada thistle	76
Cirsium vulgare (Savi) Ten.	bull thistle, common thistle	61
Hieracium aurantiacum L. and *Hieracium caespitosum*	orange hawkweed, devil's paintbrush & meadow hawkweed	79
Hieracium lachenalii K.C. Gmel.	Common hawkweed	NR[2]
Linaria vulgaris Miller	yellow toadflax, butter and eggs	69
Senecio jacobaea L.	ragwort, stinking willie	63
Sonchus arvensis L. ssp. *uliginosis* (Bieb.) Nyman	perennial sowthistle, moist sowthistle	72
Polygonum cuspidatum Sieb & Zucc.	Japanese knotweed	87
High Priority Invasive Plants—actively controlling these plants *only in certain locations*		
Brassica rapa	field mustard	NR[2]
Brassica rapa var. rapa	purple-topped turnip	NR[2]
Cotula coronopifolia L.	common brassbuttons	42
Crepis tectorum L.	narrow-leaf hawk's beard	54
Galeopsis bifida Boenn. and G. *tetrahit* L.	split-lip hemp-nettle	40
Hieracium umbellatum L.	narrow-leaved hawkweed	46
Leucanthemum vulgare Lam.	oxeye daisy, white daisy	61
Melilotus alba Medikus	white sweetclover	80
Melilotus officinalis (L.) Lam	yellow sweetclover, king's crown	65
Phalaris arundicacea L.	reed canarygrass, canarygrass	83
Polygonum convolvulus	black bindweed	NR[2]
Tanacetum vulgare	common tansy	57
Watch list--plants not known to occur on TNF, but occur elsewhere and are highly invasive		
Brachypodium sylvaticum (Huds.) Beauv.	false-brome	70
Carduus nutans L., *C. acanthoides* L., *C. pycnocephalus* L., *C. tenuiflorus* W. Curtis	musk thistle, plumeless thistle, Italian thistle, slender-flowered thistle	61
Heracleum mantegazzianum Sommier & Levier	giant hogweed	81
Hydrilla verticillata (L. fil.) Roy	Hydrilla	80
Lythrum salicaria L. & L. *virgatum* L.	purple loosestrife, spike loosetrife	78
Potentilla recta L.	sulphur cinquefoil	57
Rubus discolor Weihe & Nees	Himalayan blackberry	77
Spartina alterniflora Loisel, *S. angelica* C.E. Hubbard, *S. densiflora* Brongn., *S. patens* (Ait.) Muhls	Atlantic cordgrass, saltmarsh grass, smooth cordgrass	86
Zostera japonica Aschers. & Graebn.	dwarf eelgrass	51

[1]--Ranking designated by the Alaska Natural Heritage Program; see http://akweeds.uaa.alaska.edu/akweeds_ranking_page.htm for more information

NR[2]--Not ranked by Alaska Natural Heritage Program

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Exhibit 4. Blank Risk Assessment form.

RISK ASSESSMENT

A. Inventory (describe survey conducted and complete table below):

Table 1. High priority invasive plant species in or near the project area

Scientific Name	Common Name	Rank 0-100 (low-high)[1]	Species Present? Y or N	If Present, Gross Area of the Infestation (sq. ft.)
actively controlling these plants where feasible				
Alliara petiolata	garlic mustard	70		
Centaurea biebersteinii	spotted knapweed	86		
Cirsium arvensis	Canada thistle	76		
Cirsium vulgare	bull thistle	61		
Hieracium aurantiacum and *Hieracium caespitosum*	orange hawkweed, devil's paintbrush & meadow hawkweed	79		
Hieracium lachenalii	Common hawkweed	NR[2]		
Linaria vulgaris	yellow toadflax, butter and eggs	69		
Senecio jacobaea.	Tansy ragwort	63		
Sonchus arvensis. ssp. *uliginosis*	Perennial sowthistle	61		
Polygonum cuspidatum Sieb & Zucc.	Japanese knotweed	87		
actively controlling these plants *only in certain locations*				
Brassica rapa	field mustard	NR[2]		
Brassica rapa var. rapa	purple-topped turnip	NR[2]		
Cotula coronopifolia	common brassbuttons	42		
Crepis tectorum	narrow-leaf hawk's beard	54		
Galeopsis bifida and *G. tetrahit*	split-lip hemp-nettle	40		
Hieracium umbellatum	narrow-leaved hawkweed	46		
Leucanthemum vulgare	oxeye daisy, white daisy	61		
Melilotus alba Medikus	white sweetclover	80		
Melilotus officinalis	yellow sweetclover, king's crown	65		
Phalaris arundicacea	reed canarygrass	83		
Polygonum convolvulus	black bindweed	NR[2]		
Tanacetum vulgare	common tansy	57		

B. Habitat Vulnerability (vegetative cover types, previous disturbance, soil cover, shade, soil type, aspect/slope):

C. Non-project Dependent Vectors (existing roads and trails, traffic use, livestock/wildlife migration, wind patterns, drainage flow direction):

D. Habitat Alteration Expected as a Result of the Project:

E. Increased Vectors as a Result of Project Implementation:

F. Mitigation Measures (prevention and control):

Enter project-specific mitigation measures to be taken:

G. Anticipated Weed Response to Proposed Action:

Factors	Current condition	Risk
	Invasive plant spread factors not connected to Proposed Action (pre-existing circumstances)	With project implementation
A. Inventory		
B. Habitat vulnerability		
C. Non-project dependent vectors		
D. Habitat alteration expected as a result of the project		
E. Increased vectors as a result of project implementation	Use of area will not increase because of project	
F. Mitigation measures	If no mitigation measures implemented	Higher risk
	If some mitigation measures implemented	Moderately reduced risk
	If all mitigation measures implemented	Greatly reduced risk
G. Anticipated invasive plant response to proposed action		

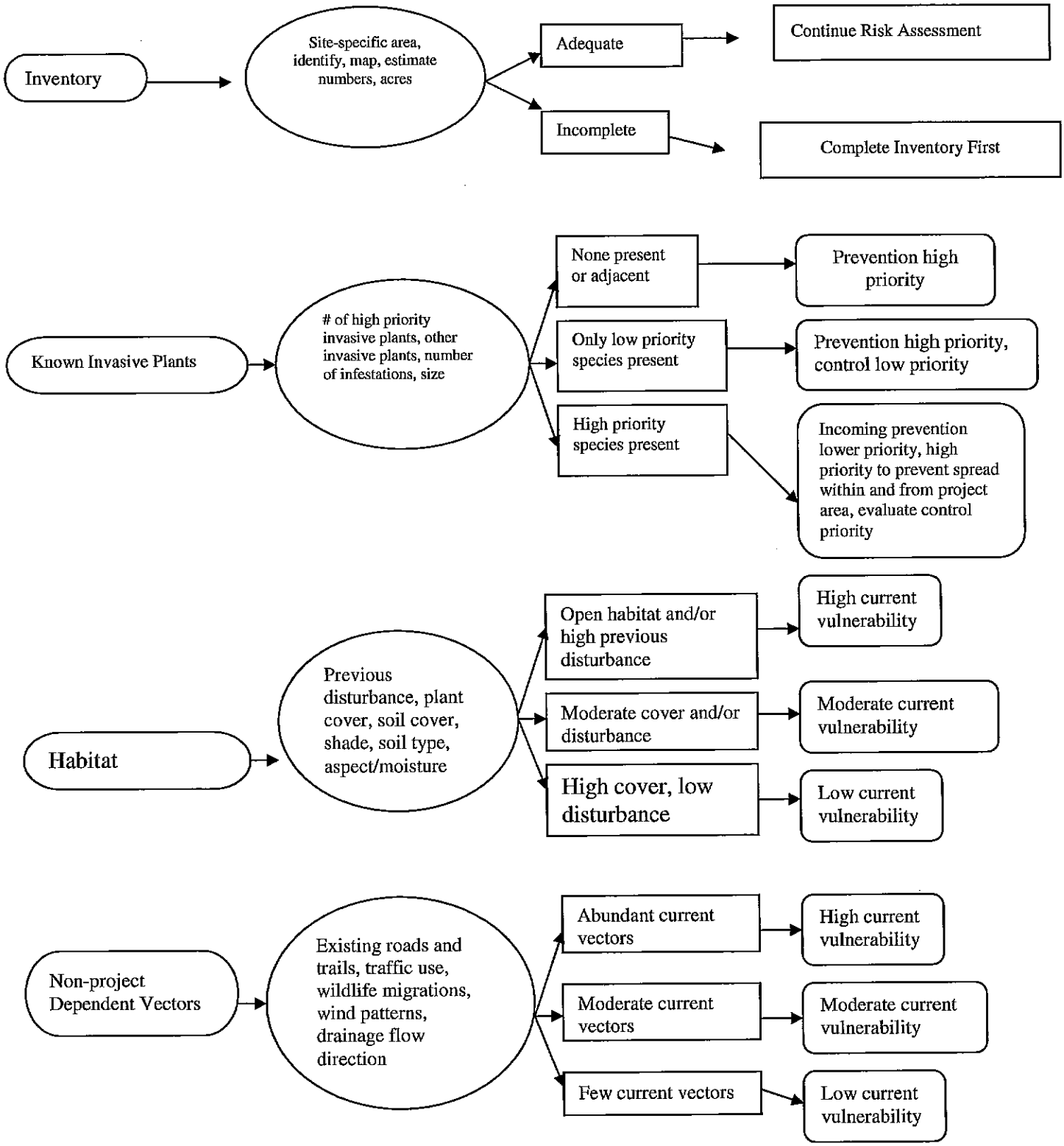
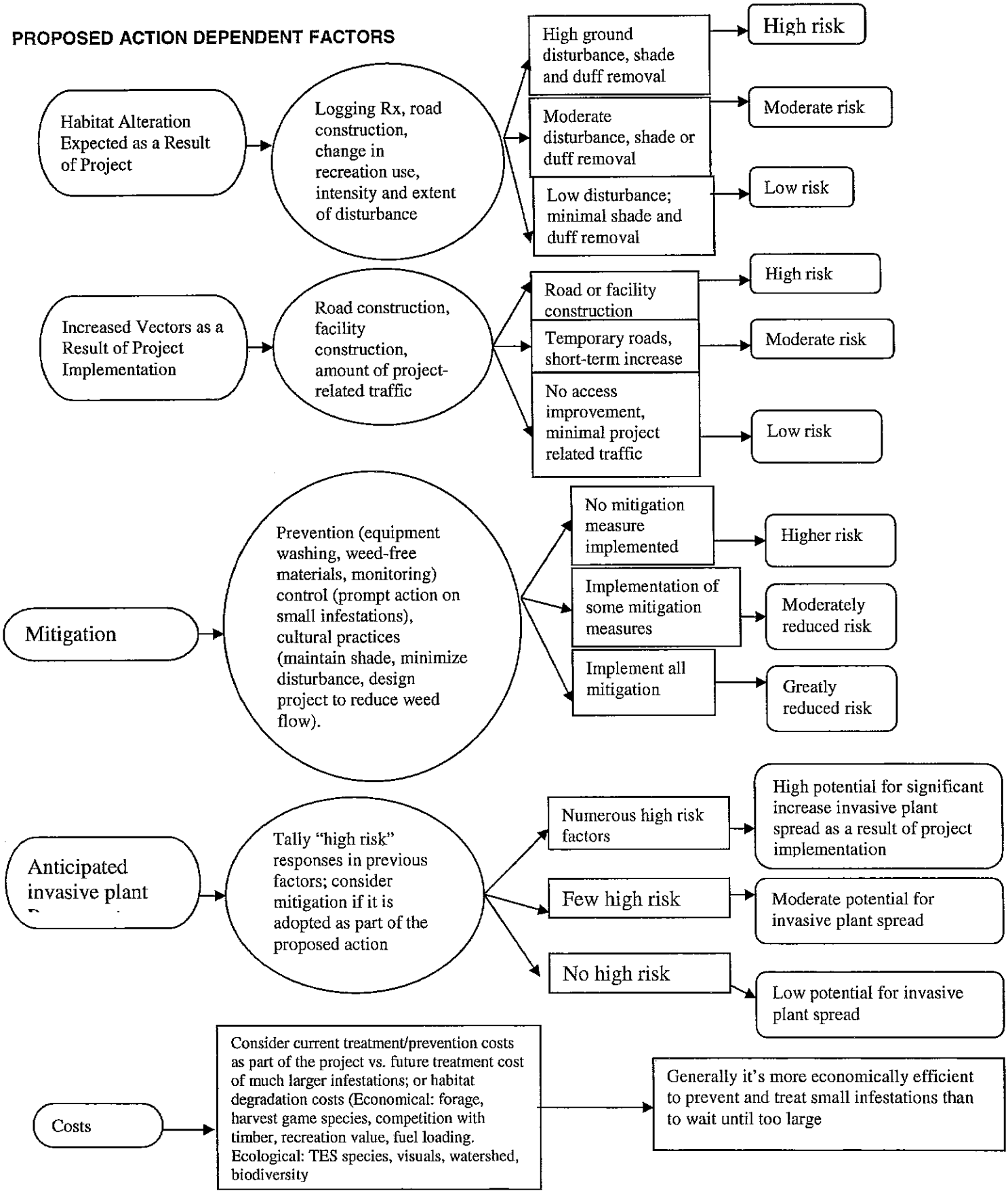
SUMMARY (include overall risk assessment)

The overall risk of invasive plant establishment as a result of the project is high/moderate/low. This determination is based on the following:

1.
2.
3.

Exhibit 5. Risk Assessment figure.

EXISTING CONDITION DEPENDENT FACTORS



PROPOSED ACTION DEPENDENT FACTORS