I. Introduction

The Superior National Forest has a unique opportunity to prevent some of the widespread ecological, social, and economic impacts caused by non-native invasive plants that plague other parts of the United States. In order to maintain and improve aquatic and terrestrial wildlife habitat, to maintain healthy, resilient native plant communities, and to maintain the character and ecological integrity of the Boundary Waters Canoe Area Wilderness (BWCAW), the Superior National Forest proposes to implement a non-native invasive plant management project, beginning with treatments on a total of approximately 13 acres at sites scattered across the 1.1 million acre wilderness and possibly expanding up to 20 acres over the next 10 years.

The proposed activities in the project area are intended to move vegetation from its existing condition toward the desired conditions as described in the Forest Plan. The proposed activities would eradicate or control existing non-native invasive plant (NNIP) populations and respond rapidly to new infestations in order to prevent the further spread of NNIP. This project proposes an integrated pest management approach to achieve results, including use of both manual (e.g. handpulling) and herbicide control methods. This scoping report informs the public of the proposal and provides an opportunity for the public to submit comments and concerns about the proposal.

In addition to threatening native plant communities and wildlife habitat, NNIP also threaten qualities of the BWCAW itself. Several components of wilderness character are threatened, including the natural quality, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and an additional component, the abundant lakes and streams. The threats to wilderness character have been analyzed by resource specialists and are disclosed in a Minimum Requirements Decision Guide (Appendix E MRDG – see page 8 to access appendices), which describes the threats, determines if action is needed, and if action is needed, determines the minimum action required to maintain wilderness character.

Unlike many public lands elsewhere in the United States, the BWCAW has a low abundance of NNIP. Wilderness areas in the western United States such as the Frank Church River of No Return Wilderness and Selway-Bitterroot Wilderness have thousands of acres of NNIP and have been using herbicides as part of NNIP management for at least the last decade. The BWCAW, in contrast, has only approximately 13 acres of NNIP. These 13 acres are surrounded by thousands of acres of susceptible habitat such as rock outcrops and wetlands. Unfortunately, most of the NNIP in the BWCAW cannot be killed by hand pulling. Thus, we have a high-value habitat and an ineffective control method. These combine to create a threat to the ecological integrity and wilderness character of the BWCAW. These threats to the Wilderness are the reason there is a need to act now to limit impacts caused by NNIP.

Over the last ten years the Superior National Forest has been implementing an integrated pest management (IPM) program to combat non-native invasive species. This approach includes information and education, inventory and early detection, prevention, treatments, restoration, monitoring, and partnerships and coordination. A successful IPM program has been slowing the spread of NNIP outside the Wilderness. Within the BWCAW, the Forest Service has been using manual methods such as digging up and removing plants to battle NNIP, but this approach is not keeping up with all of the NNIP that are showing up. For this reason, the Forest is proposing to include herbicides along with other methods in their IPM approach for the BWCAW.
II. Project Location

The project area is located within the BWCAW in the northern third of the Superior National Forest and stretches approximately 150 miles along the international border with Canada. Project activities would occur in St. Louis, Lake, and Cook Counties and would occur on four ranger districts: LaCroix, Kawishiwi, Gunflint, and Tofte. The vicinity map displays the general location of the project area. Although the BWCAW encompasses over one million acres, project activities would only occur on a total of approximately 13 acres (and possibly expanding up to 20 acres as new NNIP are found) scattered over 1007 locations. The locations of NNIP sites proposed for treatment are shown on proposed action maps in Appendix A (see page 8 to access appendices).
III. Purpose and Need for the Proposed Action

We are approaching a “tipping point” but still have an opportunity to minimize the introduction and spread of NNIP in the BWCAW. Compared to many other wilderness areas, the occurrence of NNIP in the BWCAW is relatively low. Most NNIP species are found on campsites and portages, yet they are surrounded by thousands of acres of susceptible habitat such as rock outcrops and wetlands, and thus threaten native plant communities and wilderness character. Unfortunately, most of the NNIP in the BWCAW cannot be killed by hand pulling. So there is a high-risk habitat and an ineffective control method, and these combine to create a threat to the ecological integrity of the BWCAW.

In order to maintain and improve aquatic and terrestrial wildlife habitat, to maintain healthy, resilient native plant communities, and to maintain the character and ecological integrity of the BWCAW, there is a need to implement an integrated pest management approach that eradicates or controls existing NNIP infestations and provides for a rapid response to new infestations. We propose to implement NNIP management activities, including manual and herbicide control methods, over a ten-year period in the BWCAW.

The Forest Plan (USDA Forest Service 2004 [see D-VG-1, D-VG-3, D-WL-1, D-WL-6, D-WL-9, O-WL-37, O-WL-38]) directs us to work to establish native vegetation communities and aquatic and terrestrial wildlife habitats that are diverse, productive, healthy, and resilient. Native plants should dominate all terrestrial and aquatic ecosystems, with non-native plants forming at most a minor component. The Forest Plan directs us to reduce the spread of terrestrial or aquatic non-native invasive species that pose a risk to native ecosystems. In the BWCAW, the plan directs us to work toward the removal of non-indigenous species and preservation of the natural ecosystem (p. 3-60). Specifically, the Plan’s objective (O-WL-38) is to use integrated pest management to:

- Eradicate any populations of new invaders,
- Contain or eradicate populations of recent invaders that have not become widespread yet,
- Limit the spread of widespread, established invaders.

The proposed action addresses the purpose and need and moves the resource condition in the project area towards the desired conditions established by the Forest Plan.

IV. Proposed Action

We have an opportunity to prevent widespread degradation of terrestrial and aquatic ecosystems in the BWCAW. The Forest Service proposes to manage NNIP populations using an integrated combination of control methods based on the species and site. These control methods would include hand pump or sponge herbicide application and manual control methods. The sites proposed for treatment are shown on proposed action maps in Appendix A and a table in Appendix G (see page 8 to access appendices). Table 1 summarizes the proposed treatments.

<p>| Table 1. Treatment summary for proposed action (see map in Appendix A for specific locations) |</p>
<table>
<thead>
<tr>
<th>Species Name</th>
<th>Total acres</th>
<th>Acres manual control</th>
<th>Acres using herbicide</th>
<th>Herbicide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bull thistle</td>
<td>0.02</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada thistle</td>
<td>2.7</td>
<td></td>
<td>2.7</td>
<td>Aminopyralid</td>
</tr>
<tr>
<td>Cypress spurge</td>
<td>0.1</td>
<td></td>
<td>0.1</td>
<td>Imazapic</td>
</tr>
</tbody>
</table>
This project was designed with many resources in mind: human health and safety, fish and wildlife, water, and recreation. Impacts to wilderness were one important consideration during development of the proposed action. The Minimum Requirements Decision Guide (Appendix E MRDG - see page 8 to access appendices) concluded that the minimum tools necessary to manage NNIP in the BWCAW effectively were manual methods (e.g. pulling, digging, cutting) and herbicide application. Manual methods would be used for the tap-rooted species bull thistle and spotted knapweed; pulling one of these species and getting the whole taproot kills the plant. Herbicide application would be used for the remaining species which have rhizomatous root systems that make manual methods ineffective (a rhizome is a horizontal underground root). For rhizomatous species, manual methods are ineffective for eradication because root fragments remain in the soil after pulling, allowing the plants to resprout and continue to spread. Furthermore, pulling causes disturbance of the upper layers of soil which encourages sprouting of weed seeds from the soil seed bank.

The sites shown in Appendix A would be targeted for treatment initially, but in order to respond rapidly to new infestations detected in the next ten years, up to 50% more acres than what is currently infested may be treated. In other words, there are approximately 13.06 infested acres currently known, and up to 6.53 additional acres may be treated as new infestations are found, for a total of approximately 20 acres.

These treatments would occur over the next ten years. A ten-year treatment period is needed because many of the species listed in Table 1 produce seed that remains viable in the soil for 7-10 years or more (Czarapata 2005); therefore, follow-up treatments would be needed as described below. Implementation would begin in summer 2012. Of the 1007 known NNIP occurrences, most occur on campsites (47%), portages or trails (26%), along shorelines (12%), at old resort/cabin sites (8%), or in burned areas (6%).

While developing the proposed action, the interdisciplinary team collaborated with the St. Louis County Cooperative Weed Management Area, Cook County Cooperative Weed Management Area, county and state land managers, and Tribal representatives. The collaborative effort was used to ensure coordinated NNIP management activities would occur across ownership boundaries.

**Herbicide Treatment**
Herbicides would be used for large brushy species or for herbaceous species for which manual controls are ineffective. Specific herbicides were selected based on their effectiveness and low toxicity. All herbicides proposed for use are approved by the Environmental Protection Agency and available without special permit. Table 2 summarizes the herbicides proposed for use and their targeted use. For more information about the environmental characteristics and toxicities of the herbicides, please see Appendix D (see page 8 to access appendices). Risk assessments are also available for all of the herbicides at http://www.fs.fed.us/foresthealth/pesticide/risk.shtml.

Table 2. Proposed Herbicides†, Treatment Methods, and Risks

<table>
<thead>
<tr>
<th>Common chemical name</th>
<th>Examples of trade names</th>
<th>Targeted Use</th>
<th>Weeds targeted</th>
<th>Human health risk</th>
<th>Environmental risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triclopyr</td>
<td>Garlon3A®, Brush-B-Gone®; Renovate®</td>
<td>Stump treatment, foliar treatment; broadleaf-selective</td>
<td>Siberian peabush, Tatarian honeysuckle, purple loosestrife</td>
<td>Severe eye irritant, otherwise low risk</td>
<td>Low</td>
</tr>
<tr>
<td>Imazapic</td>
<td>Plateau®, Plateau DG®, Cadre®</td>
<td>Foliar treatment, non-selective</td>
<td>Leafy spurge, Cypress spurge</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Aminopyralid</td>
<td>Milestone® VM</td>
<td>Foliar treatment; broadleaf selective</td>
<td>Canada thistle, Hawkweeds, Oxeye Daisy</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Metsulfuron methyl</td>
<td>Escort XP®, Metsulfuron methyl DF®</td>
<td>Foliar treatment; broadleaf selective</td>
<td>Tansy, St. Johnswort, Goutweed</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

† For more information about the environmental characteristics and toxicity of these herbicides, please see Appendix D.

All herbicides would be used according to manufacturer label direction (e.g., regarding rates, concentrations, and application methods). All herbicides would be applied using ground-based spot application; no aerial application would be used. Spot application directs herbicides to target plants with minimal exposure to humans, desirable vegetation, or other non-target organisms. Two pieces of...
equipment would be used for spot application: a small hand pump connected to a spray wand (Figure 1), and a wipe-on applicator (Figure 2). Wipe on methods involve rubbing a sponge wetted with herbicide against a leaf surface or a cut stump; this method would be used for purple loosestrife, on NNIP on rock outcrops next to waterbodies, and for stump treatments of woody species. The hand pump would be used for spot application on NNIP located more than 25 feet from water. There would be one herbicide application per site per year with follow-up monitoring and possible treatment in subsequent years.

Estimates of the maximum amount of herbicide used in one field season of this project are shown in Table 3. This table assumes that all sites would be treated in a given year; the actual herbicide use in a given year is likely to be less than that shown in Table 3 and would be determined by annual funding, weather, etc. On any given eight-day work trip by a field crew to treat NNIP, the amount of herbicide carried by the field crew would typically be approximately 5-15 fluid ounces. To reduce the risk of accidental spills, herbicide containers would be transported inside a second watertight container. Figure 3 shows a visual

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Application Rate</th>
<th>NNIP Acres</th>
<th>Maximum Annual Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aminopyralid (used for 82% of sites)</td>
<td>5 fl. oz./acre</td>
<td>6 acres</td>
<td>30 fl. oz</td>
</tr>
<tr>
<td>Imazapic (used for &lt;1% of sites)</td>
<td>10 fl. oz./acre</td>
<td>0.12 acre</td>
<td>1.2 fl. oz.</td>
</tr>
<tr>
<td>Metsulfuron methyl (used for 3% of sites)</td>
<td>1 oz./acre</td>
<td>3.2 acres</td>
<td>3.2 oz.</td>
</tr>
<tr>
<td>Triclopyr (used for 7% of sites)</td>
<td>192 fl. oz./acre</td>
<td>0.32 acre</td>
<td>61 fl. oz.</td>
</tr>
</tbody>
</table>

1 Remaining 7% of sites would be treated with manual methods
2 This assumes every possible known site would be treated in one year, which may not occur due to limited resources, weather conditions, etc.

Figure 3. The five water bottles in the foreground (which contain only water in this photo) demonstrate the maximum amount of herbicide that would be used in a single field season. The blue barrel has a watertight lid and would be used to transport the herbicides and application equipment. The digging tools in the foreground would be used to help cut or dig NNIP.
demonstration of the maximum amount of herbicide that would be used in one year as well as a transport container.

Any given infestation would require at least two treatments: one primary treatment and then another follow-up treatment the next year. For small infestations, two treatments would probably eliminate the infestation. For larger infestations, two to four years of follow-up treatments would likely be required. For follow-up treatments, the amount of effort at a site would decrease dramatically after the first year of treatment. Any given weed infestation would be treated once per season. The time of application depends somewhat on the target species, but would generally be during the growing season, from late-May through mid-October.

**Manual Treatment**

Manual treatments would be conducted on bull thistle and spotted knapweed by pulling, digging, or cutting the plants. After treatment, NNIP remains would be disposed of in such a way as to prevent them from starting a new infestation elsewhere. Some combination of the following disposal methods would be used, depending on the situation.

- Placing in a sturdy plastic bag, securely closing bag, and packing out of the BWCAW
- Burning in a fire grate
- Leaving plant remains on the ground or strewn on shrubs so they dry out

Factors that determine the method of disposal are: ripeness or unripeness of the seeds, seed dispersal mechanism (windborne versus waterborne), whether the species is a wetland or upland species, whether vegetative fragments can start new plants, and ease of transporting the plants.

Any given infestation would require at least two treatments: one primary treatment and then another follow-up treatment the next year. For small infestations, two treatments would probably eliminate the infestation. For larger infestations, two to five years of follow-up treatments would likely be required. For follow-up treatments, the amount of effort at a site would decrease dramatically after the first year of treatment. Any given weed infestation would be treated once per season. The time of treatments depends somewhat on the target species, but would generally be during the growing season, from late-May through mid-October.

**V. Forest Plan Operational Standards and Guidelines**

Forest Plan operational standards and guidelines would be implemented with the proposed actions and are summarized in Appendix B, Operational Standards and Guidelines, and Appendix C, Site-Specific Design Criteria (see page 8 to access appendices). The documents include the standards and guidelines that are routinely employed during NNIP management as well as site-specific protection measures. Additional specific measures may be included based on public comments and additional analysis.

**VI. Decisions to Be Made**

Authority for this decision has been delegated by the Eastern Region Regional Forester Kent Connaughton to Jim Sanders, Forest Supervisor. Decisions to be made include:

- What actions will be approved to address the purpose and need
- Where will those actions take place
• Are any mitigation measures needed to further limit effects of approved actions

This is the first invitation for public review and comment about this project. Based on the responses to this scoping outreach, the Forest Service will identify and describe issues, alternatives, and analysis of environmental effects in a draft Environmental Impact Statement (EIS). After public review and comment on a draft EIS, the Forest Service will complete the final EIS. A decision is expected in 2011 with implementation to begin in summer 2012. Treatments would continue under this decision for up to ten years, and actions beyond ten years would require subsequent analysis and decision.

VII. Accessing Information About This Project

This scoping report, the maps, and all of the appendices are available on request as well as on the Superior National Forest website. Visit our website at www.fs.usda.gov/superior and see “Projects” under “Land and Resources Management.” Look for “BWCAW Non-native Invasive Plant Management Project.”

VIII. References
