

Decision Notice and Finding of No Significant Impact

Huron-Manistee National Forests Non-native Invasive Plant Control Project

USDA FOREST SERVICE

Huron-Manistee National Forests

**Alcona, Crawford, Iosco, Lake, Manistee, Mason, Mecosta, Montcalm, Muskegon,
Newaygo, Oceana, Ogemaw, Oscoda and Wexford Counties, Michigan**

Decision and Reasons for the Decision

This notice documents my decision and finding of no significant impact (FONSI) for the Huron-Manistee National Forests Non-native Invasive Plant Control Project which will occur across the Huron-Manistee National Forests (HMNF).

I have reviewed the analysis presented in the Huron-Manistee National Forests Non-native Invasive Plant Control Project Environmental Assessment (EA) and the supporting documentation. I am satisfied that the Interdisciplinary Team (IDT) conducted a thorough analysis of the proposed action and the alternatives. In addition to applying standards and guidelines from the Huron-Manistee National Forests Land and Resource Management Plan (2006, hereafter referred to as the Forest Plan), the IDT carefully considered and applied the Best Management Practices developed by the State of Michigan and project design features developed by the Team. In addition, I am satisfied the IDT effectively involved the public and carefully considered and responded to their comments.

Background

The primary purposes of the Huron-Manistee National Forests Non-native Invasive Plant Project are to:

1. Develop and implement an integrated pest management program for the control of non-native invasive plants on the Huron-Manistee National Forests,
2. Reduce the rate of spread of non-native invasive plant species (NNIP) and control infestations on priority treatment areas,
3. Select a course treatment of NNIP control that is effective, cost efficient, and causes a minimal amount of disturbance
4. Achieve rapid control of non-native invasive plant infestations for the protection of natural plant communities and to meet Forest Plan objectives for maintenance of wildlife and Endangered, Threatened and Sensitive species habitats,

5. Protect the resiliency and integrity of natural communities and wildlife habitats that are at risk if NNIP infestations remain unchecked and,
6. Help prevent the Huron-Manistee National Forests from becoming a source of infestations for surrounding lands, and will slow the spread of invasive plants in portions of northern Lower Michigan.

The current widespread distribution of NNIP infestations on the HMNF threatens the biodiversity of native ecosystems, and negatively alters species composition in areas managed for wildlife habitat across the HMNF. Upland and wetland ecosystems are being impacted negatively by several NNIP species, and are threatened by numerous other non-native species that are likely to become invasive in the near future. (EA Chapter 1).

Decision

Based on the EA and in accordance with the direction provided in the Forest Plan and the Final Environmental Impact Statement for the Forest Plan (2006), **it is my decision to implement Alternative 4** as follows:

The proposal would allow treatment of up to 2,000 acres of NNIP-infested land annually over a 10 year period, using a combination of manual, mechanical, chemical, and/or biological treatment methods.

Control efforts focus on treating priority habitats, such as established and candidate RNAs, Wilderness, Wild and Scenic Rivers and corridors, and areas of special interest. Control efforts are primarily directed toward sources of spread: managed wildlife openings, trailheads, parking lots, campgrounds, developed recreation areas, accesses to dispersed recreation areas, and gravel pits. Total acreage of these areas is approximately 40,000 acres. Treatments typically would occur annually across the Forest over the next decade. Treatment on up to 2,000 acres yearly may include any combination of the following methods of control:

- Manual treatments (such as hand-pulling, hand-cutting, and digging);
- Mechanical treatments (such as cutting or mowing);
- Spot treatments with a propane weed torch;
- Spot treatments with licensed herbicides (such as spraying foliage using hand-held or backpack sprayers, hand wicking, cutting woody stems and applying herbicide to the cuts, or injecting herbicide into woody stems);
- Application of licensed aquatic herbicides;
- Release of APHIS and USDA-approved biological control organisms.

Treatment protocol: The current proposal is intended to be programmatic in nature, allowing use of integrated methods for future treatment of NNIP infestations. HMNF staff would

determine which NNIP infestation sites would be treated each year, and which control methods would be used most effectively and safely. Decisions would follow these guidelines:

Treatment Protocols.

- 1) Category 1, 2 and 3 species listed in Table 1-1 are the usual priority for treatment. For these high-priority species, order of site treatment and methods will be determined by infestation size, location sensitivity, potential for spread, treatment urgency, funding availability and other factors.
- 2) Category 4 and 5 NNIP sites are considered for treatment when particular infestations are identified to be of resource concern. Examples include infestations at active gravel pits, trailheads, recreation sites, Wilderness areas, RNAs and high-quality natural areas.
- 3) Manual or mechanical methods shall be the principal method of control for small spot infestations (typically less than 0.1 acre).
- 4) Herbicide use typically will be considered for infestations sites where manual or mechanical means would be cost-prohibitive, or could result in excessive soil disturbance or other resource damage.
- 5) The use of biocontrols will be considered for large infestations where eradication would be difficult to achieve due to costs, or where undesirable effects of other control methods are anticipated.
- 6) Treatment of NNIP infestations on up to 2,000 acres will occur each year.
- 7) Prior to any treatments, actions covered by this EA will be reviewed by Forest Service staff representing disciplines of aquatics, botany, cultural resources, ecology, fisheries, soils, surface and groundwater, and wildlife biology. Treatments will be designed to minimize effects on associated environmental and human resources. Treatment actions pursuant to this EA will be approved by the District Ranger for corresponding sites and with concurrence from the Michigan State Historic Preservation Office (SHPO), and the USDI Fish and Wildlife Service, as appropriate.

Project Design Criteria.

- 1) Notices shall be posted near all areas to be treated, and recently treated, with herbicides.
- 2) Herbicide application shall occur when wind speeds are less than 10 mph, or according to label direction, to minimize herbicide drift.
- 3) Herbicide label directions shall be followed carefully. This includes: temporary closure of treatment areas for public health and safety; mixing herbicide solutions in appropriate locations to prevent potential spills in naturally vegetated areas; inspecting spray equipment daily to minimize leakage or misdirection of spray streams; and use of adjuvants and surfactants only as specified by herbicide label direction.
- 4) Appropriate personal protective equipment shall be worn by licensed herbicide applicators, following label and Forest Service Manual direction.
- 5) Herbicide containers shall be disposed of following label and Forest Service guidelines.
- 6) Herbicides shall be labeled and stored appropriately in accordance with label specifications, state and federal laws, and Forest Service Manual and regulations.
- 7) Herbicides stored on-site shall have Material Safety Data Sheets per Forest Service guidelines.
- 8) All those working with herbicides shall review corresponding Material Safety Data Sheets prior to application.
- 9) Rinse water for cleaning or rinsing actions in conjunction with herbicide treatment shall be disposed of according to Environmental Protection Agency regulations.
- 10) Weather forecasts shall be obtained prior to herbicide treatment, and treatment activities shall be halted, if needed, to prevent runoff during rain events or wind-drift into non-target areas.
- 11) Areas to receive herbicide treatment shall be evaluated to ensure protection of Endangered, Threatened, and Sensitive (ETS) species. If any ETS species are found in or near treatment areas, appropriate protective measures shall be implemented, consistent with Recovery Plans and the 2006 Forest Plan.

- 12) Only formulations approved for aquatic use shall be applied in or adjacent to wetlands, lakes, and streams, as identified from ground-water sensitivity maps, National Wetlands Inventory maps, soils maps and descriptions, and ecological landtype phase (ELTP) information, following label direction (See Table 2-4).
- 13) Only least-impacting herbicides registered for such use will be used in wetlands, as determined by Forest wildlife, fisheries, botany and hydrology staff during pre-treatment review.
- 14) Aquatic herbicide applications require a permit from the Michigan Department of Environmental Quality (DEQ).
- 15) All affected private landowners, residents, and lake associations of treated lakes shall be notified of plans for local aquatic herbicide application.
- 16) Specific treatment proposals shall be reviewed by heritage staff professionals, and required documentation and consultation with the Michigan State Historic Preservation Office (MISHPO) and other interested parties completed as necessary, prior to project approval, to ensure full compliance with regulatory provisions.
- 17) Following NNIP treatments, exposed soils shall be re-vegetated promptly to avoid re-colonization by NNIP. Where manual treatments disturb soil, soil must be tamped down. Use only approved native seed, weed-seed-free mixtures and weed seed-free mulch, per Executive Order 13112, and FSM 2070.3.
- 18) Retain native vegetation, and limit soil disturbance as much as possible.
- 19) Fueling or oiling of mechanical equipment shall be conducted away from aquatic habitats.
- 20) Equipment, boots, and clothing shall be cleaned thoroughly before moving onto or from treatment sites, to ensure that seeds or other propagules of invasive species are not transported onto the site, or to other sites.
- 21) NNIP parts capable of starting new plants (seeds, rhizomes, cuttings, etc.) shall be disposed of in a way that will not facilitate spread.
- 22) All control treatments shall be timed to be most effective, based on invasive species phenology and life history.
- 23) Application and use of herbicides or pesticides is prohibited in and adjacent to occupied Karner blue butterfly habitat between April 1 and August 15,

except when the wind is not blowing toward the habitat and a minimum buffer of 100 feet (30 m) exists between the habitat and the treatment area. Avoid impacting wild lupine during application.

- 24) All herbicide applicators shall meet minimum State and Forest Service herbicide certification and licensing requirements, or be under direct field supervision of a certified herbicide applicator. All applicators shall be trained in the appropriate and safe use of herbicides.
- 25) Personnel performing any treatments shall be trained to recognize target NNIP species, and exercise care to avoid treating any plant that cannot be positively identified as a target NNIP species.
- 26) Vehicles will utilize only open existing paved and unpaved roads. Vehicles shall not use Forest Roads at times of surface inundation or saturation.
- 27) Manual, mechanical and chemical treatment activities in wetlands shall be limited to activities that do not require vehicular entry onto surface soils.
- 28) Individual NNIP tree or shrub specimens could be treated at any time, providing inspection shows no nesting bird in or below the targeted tree/shrub. Known nests or dens of Endangered, Threatened, or Sensitive species will be protected from disturbance during their breeding season.

See a list of Conservation Measures for ETS species Attached.

Manual or mechanical NNIP Treatment Methods: Manual or mechanical treatment methods would be the principal method of control for small spot infestations. Examples of hand tools that might be used include shovels, saws, axes, loppers, hoes, or weed-wrenches. Examples of motorized cutting tools that might be used include a string trimmer, chain saw, brush saw, aquatic harvester, or mower. Tractor-mounted plows and/or disks might be used in gravel pits or other areas of heavily disturbed surface soils. Barriers such as black plastic or lake-bottom screens may be used to prevent growth of some herbaceous NNIP species.

Small infestations of herbaceous plants with shallow roots, such as garlic mustard and Eurasian Water-Milfoil (EWM), might be hand-pulled. Deeper-rooted herbaceous plants such as purple loosestrife could be dug up with a shovel. Larger infestations could be mowed or otherwise cut at times selected to maximize control. Individual shrubs or small clumps of shrub species such as exotic honeysuckles, exotic buckthorns, autumn olive, and Japanese barberry could be manually felled, dug up, or girdled. Large infestations of exotic shrubs generally would not be treated with manual or mechanical methods.

A propane weed torch might be used to spot-burn specific NNIP specimens, especially lone specimens or small clumps of woody species such as ailanthus, Norway maple, and autumn

olive. The Michigan Chapter of The Nature Conservancy has used propane weed torches to kill seedlings of exotic buckthorns, where adult plants have already been removed (Tu *et al.*, 2001, p. 3.3). The weed torch works, not by starting a ground fire, but by using the torch's flame to burn target plants (Flame Engineering Inc., 2003). Weed torches would be used only under a burning plan that addresses timing and control issues.

Chemical NNIP Treatment Methods: Herbicides would be used at NNIP infestation sites where manual or mechanical means are cost-prohibitive, or could result in excessive soil disturbance or other resource damage. All herbicides would be used according to manufacturer's label direction (e.g., rates, concentrations, exposure times, and application methods) and Forest Service Manual direction (FSM 2150). In most cases, herbicides would be applied directly to target NNIP plants, using spot treatment or selective area treatment. The spot treatment approach directs herbicides to target plants without exposing humans or contacting desirable vegetation or other non-target organisms. By using spot treatment rather than broad-scale application, herbicide drift would be greatly reduced. Spot treatment techniques could include spraying foliage using hand-held wands or backpack sprayers, cutting woody stems and applying herbicide to the cuts, wiping or wicking herbicide onto stems or leaves, or injecting herbicide into woody stems. No herbicides would be applied aerially.

Woody NNIP species, such as glossy buckthorn and honeysuckle shrubs, could be cut and their stumps manually treated with formulations of triclopyr or glyphosate. If performed properly, applying herbicides to cut stumps poses little risk of injury to adjoining non-target vegetation. Young seedlings may be treated by foliar sprays, cutting, or use of the weed torch. Such treatments pose little risk to non-target vegetation if performed carefully by personnel trained to distinguish target NNIP species from other vegetation.

Only formulations approved for aquatic-use shall be applied in or adjacent to wetlands, lakes, and streams, following label direction.

The use of broadcast herbicide application using a tractor or 4 wheeler with a boom spray arm would be restricted to existing meadows or open fields with large infestations of knapweed, St. John's wort, leafy spurge, hoary alyssum, smooth brome grass, reed canary grass, or sweet clovers, where the fields are being restored to Karner blue butterfly habitat. Use of this treatment method would be permitted on up to 40 acres per year.

Native species are expected to colonize treated areas naturally, although recolonization could be slow. However, it is anticipated that treated areas might be recolonized by NNIP species that could then require retreatment.

Specific herbicides that could be used as appropriate include the following:

2,4-D ([2,4-dichlorophenoxy] acetic acid) is a selective herbicide that controls invasive broadleaf herbaceous plants and woody seedlings, but does not harm certain monocots (including grasses). 2,4-D has been found to be effective at controlling leafy spurge, purple loosestrife, buckthorn, spotted knapweed, exotic thistles, and crown vetch (Lajeunesse *et al.* 1999, Mullin 1999, Converse 1984,

Sheley et al. 1999, Hoffman and Kearns 1997, Tu 2003). Some aquatic formulations of 2,4-D are approved and effective for control of Eurasian Water-Milfoil (EWM) in lakes (Michigan DEQ 2003).

Aminopyralid (4-amino-3,6-dichloro-pyridinecarboxylic acid) is a new selective systemic herbicide that has been developed for the control of broadleaf weeds.

Clopyralid (3,6-dichloro-2-pyridinecarboxylic acid) controls many annual and perennial broadleaf weeds. It is particularly effective against members of the sunflower, nightshade, and knotweed families. Clopyralid may be used against spotted knapweed, thistles, and crown vetch (Hoffman and Kearns 1997, Beck 1999, Morishita 1999). Clopyralid is a pre-emergent and post-emergent herbicide, and so can be effective not only on the plants to which it is applied, but can also prevent germination from seeds in the soil seed bank.

Dicamba (3,6-Dichloro-o-anisic acid) is a growth regulator effective against broadleaf species, including leafy spurge, spotted knapweed, and thistles (Lajeunesse et al. 1999, Hoffman and Kearns 1997). It is typically applied in a mixture with other herbicides.

Endothall (7-oxabicyclo [2.2.1] heptane-2,3-dicarboxylic acid) is a contact herbicide approved for use in lakes for the control of aquatic invasive plants such as EWM and curly-leaf pondweed (MDEQ 2003).

Fluridone (1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-4(1H)-pyridinone) is a selective systemic aquatic herbicide used to control primarily broad-leaved, submerged aquatic macrophyte species including Eurasian watermilfoil, or curly-leaf pondweed as well as native pondweeds (Mattson 2004).

Fosamine ammonium salt (FAS) (ethyl hydrogen [aminocarbonyl] phosphonate) is a selective herbicide that inhibits growth in undesirable woody species. It is commonly used for brush control (Tu et al. 2001). FAS works through absorption by leaves, stems, and buds. FAS may be used effectively on honeysuckle, buckthorn, and Japanese barberry.

Glyphosate (N-[phosphonomethyl] glycine) is a non-selective, broad spectrum, systemic herbicide that is used to control many grasses, forbs, vines, shrubs, and trees. Glyphosate is effective against garlic mustard, Japanese barberry, leafy spurge, honeysuckle, purple loosestrife, buckthorn, crown vetch, and Japanese knotweed (Hoffman and Kearns 1997, Johnson 1996, Seiger 1991).

Imazapic (\pm)-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-methyl-3-pyridinecarboxylic acid) is a selective herbicide that is used primarily in and around populations of native, warm season grasses.

Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5oxo-1Himidazol-2-yl]-3-pyridinecarboxylic acid) is a selective herbicide that is used primarily in the control of hardwood trees and some species of grasses.

Metsulfuron methyl (Methyl-2-[[[(4-methoxy-6-methyl-1,3,4-triazin-2-yl)amino]-carbonyl]amino]sulfonyl]benzoate]) is a selective pre-emergence and post-emergence sulfonyl urea herbicide used primarily to control many annual and perennial weeds and woody plants.

Sethoxydim (2-[1-{ethoxyimino}butyl]-5[-2-{ethylthio}propyl]-3-hydroxy-2-cyclohexen-1-one) is a selective herbicide used to control annual and perennial grasses (Tu et al. 2001). It has little or no impact on broadleaf herbs or woody plants. NNIP species on HMNF that could be controlled by sethoxydim include smooth brome and reed canary grass.

Triclopyr ([{3,5,6-trichloro-2-pyridinyl}oxy] acetic acid) is a selective herbicide that controls invasive, broadleaf herbaceous and woody plants, but does not harm certain monocots (grasses). It is particularly effective at controlling woody species with cut-stump or basal bark treatments. Triclopyr is effective against garlic mustard, Japanese barberry, honeysuckle, buckthorn, and crown vetch (Hoffman and Kearns 1997). Aquatic formulations of triclopyr are available for the control of EWM in lakes (Michigan DEQ 2003).

Each of these herbicides is marketed in multiple formulations, which vary as newer formulations reach the market and older formulations are removed from sale. Forest staff would determine the herbicide and formulation appropriate for use at each treatment site. The determination would consider restrictions on the manufacturer’s label, efficacy against NNIP species present, safety to application personnel and other people at the site, and ability to use in a manner that minimizes potential contact with and injury to non-target vegetation and wildlife. Only formulations labeled for wetland use would be applied in, near or around lakes, streams, wetlands, shorelines, riparian areas, or areas with susceptible soil and water table depth conditions. All herbicide formulations would be used in strict accordance with the manufacturer’s label and Forest Service direction (FSM 2150).

Herbicide	Sample Trade names	Target plants	Site selection
2,4-D	Weed-B-Gon, Brash, many others	Broadleaf herbs & woody seedlings	Would be considered for use if other herbicides did not work. Minimum buffer of 150 feet from surface water. Will not be applied on gravel, sand, sandy loam, or where groundwater is < 10 feet deep.

2,4-D (aquatic- approved)	Aqua-Kleen, Navigate, Aquicide	Eurasian water-milfoil	Ponds, Lakes ¹ .
Aminopyralid	Milestone	Broadleaved weeds and invasive plants(spotted knapweed	Up to the waters edge
Clopyralid	Stinger, Transline, Curtail	Exotic thistles and crown vetch	Roadsides & rights-of-way. Would be used if other herbicides were not effective. Generally would not be used on well-drained soils where water table is within 10 feet of the surface.
Dicamba	Banvel II, Vanquish	Broadleaf herbs	Often a secondary ingredient with 2,4-D. Same restrictions as 2,4-D.
Endothall	Aquathol K, Hydrothol 191	Aquatic plants	Ponds, Lakes ¹ .
Fluridone	Sonar	Aquatic plants (ex. Eurasian Watermilfoil, curlyleaf pondweed)	Ponds, Lakes
Fosamine ammonium salt	Krenite	Woody plants	Would be tried as foliar spray on large, dense, infestations to avoid impacts to neighboring herbs.
Glyphosate	Round-Up, many others	Would be targeted against all upland broadleaf NNIP listed in Table 1-1.	Uplands ² .
Glyphosate (wetland- approved)	Rodeo, Accord	Non-selective. Would be targeted against purple loosestrife, buckthorn, and European swamp- thistle.	Wetlands. Herbicide of first choice for non-aquatic wetland sites.
Imazapic	Plateau, Cadre	Some annual and perennial grasses and some broadleaf weeds	Uplands
Imazapyr	Arsenal	Annual and perennial grasses, broadleaves, vines, brambles, brush, and trees	Uplands not for aquatic use
Metsulfuron methyl	Ally, Allie, Gropper, and Escort	Selective on broadleaf weeds and some annual grasses	

Sethoxydim	Poast, Vantage, Rezult	Grasses (Smooth brome and reed canary grass).	Minimum buffer of 150 feet from surface water.
Triclopyr	Garlon, Access, Brush- B-Gon, Renovate	Broadleaf NNIP, particularly shrubs.	Uplands and wetlands ² .
Triclopyr (aquatic- approved)	Renovate	Eurasian water-milfoil	Lakes ¹ .

1. *2,4-D has been favored by local lake associations conducting Eurasian water-milfoil treatments in recent years. Triclopyr would be used as a comparison, and Endothall would be used if the other herbicides were found to be ineffective or otherwise unsuitable. Selectivity would be a consideration where non-target species form a protective barrier against re-invasion. Also see Table A-2.*
2. *Glyphosate and Triclopyr would be the most commonly used herbicides. Glyphosate would be favored for herbs. Either herbicide could be used on shrubs, to determine which provides the best results for each target NNIP species.*

Biological NNIP Control Methods: Biological control of NNIP infestations involves releasing specific insects that feed on or parasitize specific target plant species. Most biological control agents are insects native to other parts of the world where target plant species originally arose. All non-indigenous species used as biological control agents must be approved for release in the United States by the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS). An exception is milfoil weevil, which is native to North America. Biological control methods generally suppress host NNIP populations, but do not necessarily contain or eradicate them. Biological control of plants is already a common practice on State, Tribal, County, and private land in Michigan and Wisconsin.

Specific biological control agents (all of which are insects) that could be used include:

- Black-margined loosestrife beetle (*Galerucella californiensis*) for purple loosestrife;
- Golden loosestrife beetle (*Galerucella pusilla*) for purple loosestrife;
- Loosestrife root weevil (*Hylobius transversovittatus*) for purple loosestrife;
- Knapweed root weevil (*Cyphocleonus achates*) for spotted knapweed;
- Lesser knapweed flower weevil (*Larinus minutus*) for spotted knapweed;
- Brown-legged leafy spurge flea beetle (*Aphthona lacertosa*) for leafy spurge;
- Black dot leafy spurge flea beetle (*Aphthona nigriscutis*) for leafy spurge;
- Milfoil weevil (*Euhrychiopsis lecontei*) for EWM.

Black-margined loosestrife beetle has proven effective in trials in the Lower Peninsula of Michigan (Landis et al. 2003). All the listed biological control agents can be released without mechanically crushing non-target vegetation.

Biological control can be effective on dense infestations over large areas (Rees et al., 1996, pp. 13-15). It would therefore be considered for large infestations where eradication is difficult due to cost or undesirable side effects from other control methods. Biological control agents generally are released as adults (not as eggs or larvae) between June and August. Some releases would simply involve emptying a container of insects. Other releases might be performed by placing insect-bearing plants at a treatment site. If a release is successful, insects will continue to live and reproduce as long as host plants remain in quantities sufficient to support insect populations. Release sites would be monitored for effectiveness of NNIP control.

Conservation Measures Common to all Federally-listed Species

Conservation Measures are outlined for each Federally-listed species. Conservation Measures common to all Federally-listed species for Alternative 4 may be summarized as follows:

1. All areas proposed for manual, mechanical or chemical treatment would be reviewed first by Forest Service botanists and wildlife specialists for the possible presence of Federally-listed species prior to implementation of any treatments.
2. If reviews under Measure 1 indicate a need to survey a treatment area for one or more species and sufficiently up-to-date field survey data are not available, then field surveys would be conducted prior to implementation of any manual, mechanical or chemical treatments using standard professional survey procedures in appropriate seasons. Because field surveys for many species can only be conducted at certain times of the year (e.g., during nesting season for migratory bird species), careful advance planning would be necessary. Surveys would be performed by qualified biologists using standard field survey methodologies appropriate for each Federally-listed species potentially present.
3. Manual, mechanical and chemical treatments would not be conducted in the vicinity of nesting sites or other occurrence sites for sensitive life stages, of any Federally-listed species during seasons when sensitive life stages are typically present. Individual Conservation Measures discussions provide specific details on the types of sites that must be avoided, the times (seasons) those sites must be avoided, and minimum avoidance distances from those sites.

4. Herbicides (chemical treatments) would be applied only by licensed applicators, using manual or vehicle-mounted equipment, at rates and under weather conditions consistent with the manufacturer's label and Forest Service Manual direction (FSM 2150).
5. Only herbicide formulations labeled for use in aquatic habitats would be used in, on or around lakes, ponds, streams, wetlands, shorelines, or riparian areas.
6. Personnel conducting manual, mechanical or chemical treatments would be trained to recognize target NNIP species and instructed to avoid damaging non-target vegetation.

The Forest Services acknowledges that additional information will likely be published over the course of the proposed 10-year program, on new herbicides and biological control agents, as well as new information on the herbicides and biological control agents already included in the program. Based on new published data, the Forest Service might consider the addition of new herbicides and/or biological control agents to the program. However, the Forest Service would conduct a revised evaluation before using any herbicide or biological control agents other than those specifically indicated in Alternative 4.

The Forest Service also would consider elimination of certain herbicides and/or biological control agents if new published data indicates previously undiscovered environmental risks.

To the extent practical, the analysis identifies native replacements that can be planted where prominent non-native nectar producers are disturbed or eradicated. Specifically, planting native Allegheny plum and staghorn sumac as replacements for autumn olive. Similarly, native milkweeds, including butterfly weed, and other nectar species can replace spotted knapweed or other nectar producing non-native invasive species. There is currently no commercially available native source for brambles (*Rubus* spp.), although cultivated raspberries and blackberries provide the same benefits. The EA also investigates the feasibility of developing a native source for brambles for use in replacement planting.

Reasons for the Decision

My decision to implement Alternative 4 is based on its effectiveness in achieving the stated purpose and need for the project (EA, Chapter 1.3) and represents the application of the goals of the Management Direction listed in the Environmental Assessment (EA Chapter 1.2). In evaluating the effects of the alternatives as stated in Chapters 3 and 4 of the EA, it is my judgment that while all alternative address public comments equally through the design criteria, Alternative 4 is more effective than the other alternatives in achieving the stated purpose and need for action, for the following reasons:

1. In achieving the purpose and need for controlling NNIP Alternative 4 allows for treatment of up to 2,000 acres of NNIP infestation each year, while Alternative 1 would allow none and Alternative 3 allows only 1,000 acres of treatment (EA Chapter 2).
2. Alternative 4 allows more flexibility of treatment options by adding 5 additional herbicides to select from, beyond those in the original Proposed Action (Alt. 2). This would allow treatment to be tailored for the species being treated, species on the site to be protected and other factors in each unique situation.(EA., Chapters 2.2, 2.3.1 and 4.11)
3. Alternative 4 better provides for the establishment of habitat for the endangered Karner blue butterfly (KBB) by allowing for up to 40 acres of treatment per year, in infested areas being restored for KBB habitat, using a boom arm sprayer mounted on a tractor or 4 wheeler (EA Chapter 4.1.4).

In developing the EA, DN, and Finding of No Significant Impact (FONSI), I recognize that less than complete knowledge exists about many relationships and conditions of wildlife, fish, forests, herbicides, jobs, and communities. The ecology, inventory, and management of a large forest area are complex and constantly developing sciences. The biology of wildlife species prompts questions about population dynamics and habitat relationships.

The interaction between resource supply, the economy, and communities is not an exact science. Perfect knowledge and absolute guarantees are not attainable, no matter how much we wish it to be otherwise. As required by 36 CFR 219.35, I have considered the best available science in making this decision. The project record demonstrates a thorough review of relevant scientific information, consideration of responsible opposing views, and, where appropriate, the acknowledgment of incomplete or unavailable information, scientific uncertainty, and risk.

The management actions in Alternative 4 are routine and have been analyzed by the interdisciplinary team. Based on analysis of the current project and many previous projects it is my decision to implement Alternative 4 to achieve the stated objectives of the project.

Other Alternatives Considered

In addition to the selected alternative, I considered three other alternatives in detail (Alternative 1, Alternative 2 and Alternative 3). A comparison of these alternatives can be found in Table 4.6 (EA, pages 124-134).

Alternative 1: No Action

Under the No Action Alternative, the Forest Service would not implement an integrated program of treatments to control NNIP infestations on the HMNF.

Limited herbicide, mechanical, manual treatment and biological control of small infestations of NNIP species may occur in special areas or administrative sites through separate decisions, but most NNIP infestations would persist and spread.

Alternative 2: The Proposed Action Alternative

Control efforts focus on treating priority habitats, such as established and candidate RNAs, Wilderness, Wild and Scenic Rivers and corridors, and areas of special interest. Control efforts are primarily directed toward sources of spread: managed wildlife openings, trailheads, parking lots, campgrounds, developed recreation areas, accesses to dispersed recreation areas, and gravel pits. Total acreage of these areas is approximately 40,000 acres. Treatments typically would occur annually across the Forest over the next decade. Treatment on up to 2,000 acres yearly may include any combination of the following methods of control:

- Manual treatments (such as hand-pulling, hand-cutting, and digging);
- Mechanical treatments (such as cutting or mowing);
- Spot treatments with a propane weed torch;
- Spot treatments with licensed herbicides (such as spraying foliage using hand-held or backpack sprayers, hand wicking, cutting woody stems and applying herbicide to the cuts, or injecting herbicide into woody stems);
- Application of licensed aquatic herbicides;
- Release of APHIS and USDA-approved biological control organisms.

Herbicides proposed for use in this alternative include:

2, 4-D, Clopyralid, Dicamba, Endothall, Fosamine ammonium salt, Glyphosate, Sethoxydim, and Triclopyr.

The following are examples of biological control organisms. Other USDA/APHIS approved species might be used as well.

- Black-margined loosestrife beetle (*Galerucella californiensis*) for purple loosestrife;
- Golden loosestrife beetle (*Galerucella pusilla*) for purple loosestrife;
- Loosestrife root weevil (*Hylobius transversovittatus*) for purple loosestrife;
- Banded gall fly (*Urophora affinis*) for spotted knapweed;
- VU knapweed seed head fly (*Urophora quadrifasciata*) for spotted knapweed;
- Copper leafy spurge flea beetle (*Aphthona flava*) for leafy spurge;
- Brown-legged leafy spurge flea beetle (*Aphthona lacertosa*) for leafy spurge;
- Black dot leafy spurge flea beetle (*Aphthona nigriscutis*) for leafy spurge;
- Milfoil weevil (*Euhrychiopsis lecontei*) for Eurasian water-milfoil.

Alternative 3: Reduced Treatment

Alternative 3 was developed in response to public scoping comments that expressed concern over the size and extent of the Proposed Action. Under Alternative 3, the Forests would implement an integrated program to control NNIP infestations on the HMNF as described for Alternative 2, but the acreage treated annually would be decreased to a maximum of 1,000 acres per year. Proposed treatments and protocols would otherwise be as described for Alternative 2.

This treatment can be considered in perspective by comparing it to the overall size of the HMNF, approximately 970,000 acres. Under Alternative 3, the total area subject to treatment would not exceed 1,000 acres of combined treatments per year. This amounts to an annual treatment area of less than 0.10 percent of the entire HMNF.

Public Involvement

In making this decision, I have taken into account public concerns and comments about the proposed project. I have evaluated the adequacy of the issue resolution in the EA, in formulating alternatives to Alternative 2, determining design criteria, and evaluating the effects of alternatives. No comments were received on the Environmental Assessment during the 30-day comment period. Therefore, based on all factors, it is my judgment that Alternative 4 best provides for the greatest net benefit to the public.

On January 25, 2007, scoping letters explaining the proposed actions of the Non-native Invasive Plant Control Project were sent to individuals and organizations on the District's and Forests' mailing list, NGOs, Tribes, and other parties known to have an interest in this project. The scoping letter was also posted on the internet. A legal notice was placed in the Cadillac News on January 27, 2007. Out of 203 scoping letters mailed on January 25, 2007, five comments were received in response to public scoping activities. Additional issues were also identified by the IDT.

The primary issues that were identified as a result of scoping were:

- 1) There is a need to use broadcast herbicide application using a tractor or 4 wheeler with a boom spray arm in existing meadows or open fields with large infestations of knapweed, hoary alyssum, smooth brome grass, reed canary grass, or sweet clovers, prior to seeding the site to native nectar producing plants for Karner Blue Butterfly habitat.

In this specific instance involving KBB habitat, spot treatment with herbicide using a backpack sprayer would not be cost efficient, and may have reduced effectiveness due to the potential for uneven application.

- 2) Loss of nectar-producing plants (most importantly: spotted knapweed, white sweet clover, yellow sweet clover, and purple loosestrife) will harm bee populations and other pollinating insects.

- 3) Loss of pollinators caused by this action will reduce the ability of beekeepers to pollinate Michigan's fruit crops and cause economic loss to surrounding agriculture.
- 4) Proposed use of biological control agents is unnecessary and/or may be harmful to other insects, wildlife, and vegetation.
- 5) Some Non-Native Invasive Plant (NNIP) species listed for treatment do not pose substantial harm, or the benefits outweigh the harm, and as such should not be treated under this proposal.
- 6) NNIP nectar-producing plants should be replaced with basswood, milkweed, brambles (raspberries and blackberries) and butterfly weed.
- 7) Loss of nitrogen-fixing plants will adversely affect the nitrogen cycle of native communities that may depend on infertile soils; Black Locust and Autumn Olive should be retained to hold and enhance soil conditions as they were planted to do.
- 8) Removal of Autumn Olive will be harmful to wildlife, as it provides a needed winter food source.
- 9) Herbicides proposed for use will remain active in the soil and pose environmentally harmful effects.
- 10) Removal of Scots pine will be harmful to re-establishment of oak and hardwoods.
- 11) A cost-benefit analysis should be performed to evaluate the overall benefit of eradicating certain NNIP versus the cost of doing so.
- 12) The proposal is too overreaching and/or will be largely ineffective, and therefore needs to be scaled back.
- 13) The proposal will result in adverse cumulative impacts.
- 14) The proposed action should focus on the use of fire and biodiversity to control NNIP.
- 15) Based on reference materials and experience, herbicides are often the best option for long-term, large-scale control of certain invasive plants. There are numerous chemicals available, specifically those that more appropriately match a chemical to a target plant species. It is imperative to consider all the ramifications involved with selecting and applying herbicides. The suite of chemicals in Alternative 2 may be too restrictive. Optional herbicides which could enable more flexibility to the Forests include aminopyralid, fluridone, imazapic, imazapyr, and metsulfuron methyl.

A complete discussion of the issues studied for this project can be found in Chapter 2.2 of the EA.

Public comments on the Environmental Assessment were solicited on May 14, 2009. Notification during the formal 30-day comment period was done via letters to the interested public and a newspaper notice in the Cadillac News on May 15, 2009. No comments were received on the Environmental Assessment.

Copies of the initial scoping letter, the 30-day comment period notification letter, mailing list of individuals, government agencies, tribes, and organizations contacted, and the comments that were received can be found in the Non-native Invasive Plant Control Project Planning Record.

Finding of No Significant Impact (FONSI) for the Huron-Manistee Non-native Invasive Plant Control Project

After considering the environmental effects described in the EA along with past experience with similar forest management activities, and in accordance with 40 CFR 1508.27, I have determined that implementation of Alternative 4 is not a major federal action and will not significantly affect the quality of the human environment considering the context and intensity of impacts.

My determination is based on a review of the project record that shows a thorough review of relevant scientific information, a consideration of responsible opposing views, and the acknowledgement of incomplete or unavailable information, scientific uncertainty, and risk. Thus, an environmental impact statement will not be prepared. This determination was based on the following factors:

Context of Effects

This project, calls for treatment on up to 2 percent of the Huron-Manistee National Forests annually based on funding availability. After a thorough review of the effects analysis contained in the EA, I can find no basis for concluding that this project has significance (either short-term or long-term) beyond the bounds of the Huron-Manistee National Forests. The reasons for my conclusions are more specifically described in the paragraphs that follow.

Intensity of Effects

This refers to the severity of impact, as defined by the Council on Environmental Quality (CEQ) regulations at 40 CFR 1508.27. The following factors are considered in evaluating intensity:

- Both beneficial and adverse effects have been considered in the analyses and implementing Alternative 4 will not have a significant effect on the quality of the environment (EA, Chapter 4). My finding of no significant environmental effects is not biased by the beneficial

effects of the action. The project contains conservation measures and design criteria to minimize effects of treatments. The EA demonstrates that the effects of this alternative are relatively minor and impacts generated are not directly, indirectly or cumulatively significant.

- Alternative 4 will not significantly impact public health and safety. Treatment measures pose only marginal safety risk to workers or the public. Applicable Federal laws stipulate that a person or company must obtain a registration, or license, from EPA to distribute or sell a pesticide in the United States. Before registering a new pesticide or new use for a registered pesticide, EPA must first ensure that the pesticide (including any adjuvant, surfactants, or other ingredients and product contents), when used according to label directions, can be applied with a reasonable certainty that it would not harm human health, and would not pose unreasonable risks to the environment. Herbicide label instructions, Forest Service Manual direction, and Pesticide Applicator licensing requirements would be followed. (EA, Chapter 4.6 and appendices)
- Analysis of the cultural resources of the project area has been completed (EA, Chapter 4.5)
- The effects on the quality of the human environment are not likely to be highly controversial based on contacts with resource professionals (EA, Chapter 4). Alternative 4 addresses the concerns that were raised through the initial scoping period with conservation measures, design criteria and by specifying that native nectar producing plants will be planted in treatment areas where needed. (EA, Chapters 2-4)
- The effects analysis shows the effects are not uncertain, and do not involve unique or unknown risk (EA, Chapter 4 and appendices) Herbicides would be applied only by licensed applicators, using manual or vehicle-mounted equipment, at rates and under weather conditions consistent with the manufacturer's label and Forest Service Manual direction (FSM 2150). Only herbicide formulations labeled for use in aquatic habitats would be used in, on or around lakes, ponds, streams, wetlands, shorelines, or riparian areas. (EA chapters 2 and 4)
- This decision does not set a precedent for future actions with significant effects because it is similar to projects that have previously been implemented and it is consistent with the direction put forward by the Forest Plan. This decision will not direct or limit future management actions beyond those listed in this document.
- Alternative 4 will not affect any unique characteristics of the geographical area (EA, Chapters 3 and 4).

- The action does not cumulatively reach a level of significance, even when combined with past, present and reasonably foreseeable future actions on public and private lands in the area. The effects of other foreseeable future actions as well as past actions and ongoing actions were included in the analysis (EA, Chapters 3 and 4).
- Alternative 4 will have no adverse affects on any endangered or threatened species or habitat that has been determined to be critical for these species under the Endangered Species Act of 1973 (Project Record, see Biological Assessment for the Non-native Invasive Plant Control Project and the concurrence letter from the U.S. Fish and Wildlife Service). (EA, Chapter 4)
- None of the actions in Alternative 4 threaten to lead to violations of federal, state or local environmental laws, or requirements imposed for the protection of the environment (EA, Chapter 4). Additionally, the actions comply with the Forest Plan (EA Chapter 1.2)

Findings under NFMA and Other Laws and Regulations

The management actions in this decision to implement Alternative 4 of the Non-native Invasive Plant Control Project are appropriate to meet the Standards and Guidelines that apply to all Management Areas (MA) of the Forest Plan, (EA Chapter 1.4), as well as the other management direction and policy (Forest EA Chapter 1.4).

Other applicable regulatory requirements and law are listed below.

- Alternative 4 includes measures to avoid or mitigate adverse impacts (40 CFR 1505.2 (c)) (EA, Chapter 2).
- By following standards and guidelines and mitigating measures in the Forest Plan and through implementation of conservation measures and design criteria as described in the EA. (EA Chapter 2)
- The prescribed actions are best suited to the multiple-use goals established for the Forests the Forest Plan (EA). Potential biological, heritage resources, soils, air, and water quality, and civil rights effects were considered in this determination. (EA, Chapters 3 and 4)
- The actions in Alternative 4 which included design criteria ensure conservation of soil and water resources (EA, Chapter 4).
- The actions in Alternative 4 are expected to achieve the desired effects on retention of native species, wildlife and fish habitat, water quantity

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's target center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-w, Whitten Building, 1400 Independence Ave. SW, Washington, DC 20250-9410 or call 202-720-5964 (voice or TDD).

USDA is an equal opportunity provider and employer.