

MINIMUM REQUIREMENTS DECISIONS
and
MINIMUM TOOL ANALYSIS

Wilderness Non-native Invasive Plant Programs

Prepared by Susan Sater and adapted for the toolbox by Tom Carlson, 2005

Note – See Section XI., F. for examples of Minimum Requirements Analysis.

“A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions”

Wilderness Act, 1964, Section 2(c)

“(b) Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. “

Wilderness Act, 1964, Section 4 (b)

Any wilderness Non-native Invasive Plant Program should begin by addressing whether or not management action is necessary in wilderness in order to preserve wilderness character. If the answer to this question is yes, then the second question must address the minimum tool needed to implement treatment with the least adverse effects to the wilderness resource. The following analysis provides documentation of the rationale on this issue adopted by the PNW Invasive Plant EIS in Region 6. A minimum tool worksheet complete with useful information about treatment of NNIP in wilderness, is also provided. The Minimum Requirements or Minimum Tool analysis should be completed for any site specific action that proposes to include roads, structures or installations, motorized equipment, and mechanical transport as part of treatment for invasive plants. This analysis is not a substitute or alternative for a NEPA analysis but is intended to compliment a NEPA analysis and show how analysis in the EA or EIS applies to designated wilderness. It is also intended to show how existing law, regulation, and policy apply regarding invasive plants in designated wilderness, and does not create new policy or direction. Any project level Minimum Requirements or Minimum Tool Analysis should cite information from the relevant NEPA analysis as necessary.

Note – The following Minimum Requirements/Minimum Tool analysis is based on the original Minimum Requirements Decision Guide (MRDG) format which is no longer available. For a copy of the current MRDG go to www.wilderness.net/mrdg/.

DETERMINING THE MINIMUM REQUIREMENT:

Is Action Needed?

The issue addressed in this analysis is the presence or potential establishment of invasive plants in wilderness.

Is this an emergency? Yes No **XX**

Although the situation is not an emergency in the sense of fire or rescue, rapid identification and action regarding invasive plants is the surest way to eradicate an infestation and is likely to offer the least impacting control options. There are currently many invasive plant infestations in wilderness across the region; a decision is needed as quickly as possible on what, if any, action is appropriate for as many infestations as possible.

Is this problem/issue subject to valid existing rights, such as access to valid mining claim, state lands, etc? Yes No **XX**

Can the problem/issue be addressed by administrative actions outside a wilderness area? (For example, the administrative actions could be an information program at the visitor center or trailhead instead of a physical action in the wilderness, etc)

Yes **XX** No **XX**

Outside wilderness, the most important action is to treat infestations in order to prevent introduction of invasive plants into wilderness. All alternatives of the PNW Invasive Plant EIS include treatment and public use requirements outside wilderness which are intended to prevent or manage invasive plant infestations. This analysis only addresses treatment, or not, inside wilderness.

Is there a special provision in legislation (the 1964 Wilderness Act or subsequent laws), that allows this project or activity?

Yes No **XX**

The provisions of Section 4(d) of the 1964 Wilderness Act allow control of fire, insects, and diseases. Treatment of invasive plants, although potentially somewhat similar to fire, insects, and diseases is not mentioned. Clearly there is no explicit allowance for treatment of invasive plants in this language, and this analysis assumes treatment of invasive plants is not implicitly intended.

If the issue/problem is not resolved, or action is not taken, will the natural processes of the wilderness be adversely affected?

Yes No

The dilemma created by invasive plants is that it is usually not possible to both preserve natural conditions and to also maintain freedom from human manipulation. A choice must usually be made to either preserve natural conditions by actively manipulating wilderness to reduce or eliminate invasive plants; or to keep wilderness free from intentional modern human manipulation, but loose natural conditions due to the changes caused by invasive plants.

Invasive plants, left untreated, can alter natural plant communities, interact with native wildlife species, and alter ecological processes such as plant community dynamics and disturbance processes such as fire.

Action to prevent invasive plants from becoming established, to contain infestations, or to eradicate invasive plants are recognized as active human manipulations of wilderness.

If the issue/problem goes unresolved, or action is not taken, will the values of solitude or primitive and unconfined type of recreation be threatened?

Yes No

There are potential positive *and* negative effects to the wilderness experience.

Negative effects from no action and the continued presence and expansion of invasive plants include: direct physical effects to recreationists from chemicals and spines, barbs, etc., of invasive plants; changes to the natural conditions and processes expected as part of the experience of wilderness; loss or reduction in the sense that this is a place free from unnatural vegetation.

Negative effects of treating invasive plants include trammeling or modern human interference with ecological dynamics between the natural plant communities and the introduced invasives that can affect the sense that the wilderness is free from human control or manipulation. Manual control methods, mechanical treatments, use of herbicides, use of motorized equipment, mechanical transport, or other treatments and related activities have adverse effects to the experience of wilderness.

If the issue/problem goes unresolved or action is not taken will evidence of human manipulation, permanent improvements, or human habitation be substantially noticeable?

Yes No

There are noticeable effects of human manipulation from *both* treatment and absence of treatment.

Where invasive plants have been introduced by people, there are noticeable effects to wilderness. Without treatment, in extreme cases, the invasive plants will alter natural plant communities, interact in unknown ways with native wildlife species, and alter ecological processes such as plant community dynamics and disturbance processes such as fire. In the most extreme situations, invasive plants can irrevocably alter evolutionary processes.

Treatment also can, in the most extreme cases, require essentially perpetual human action to prevent spread or establishment of invasive plants, and may even require establishment of non-native species for extended periods of time, if not essentially permanently. In some cases treatment will also require use of motorized equipment and mechanical transport and also mechanical manipulation of vegetation or use of herbicides or biocides. Any of these treatments pose the risk of unwanted effects to other than the targeted invasive plants. Even limited and localized manual control methods require crews and activity that would be evident to many wilderness users and are an obvious manipulation at least at a small scale.

Does addressing the issue/problem or taking action protect the wilderness as a whole as opposed to a single resource?

Yes **XX** No

The intent of the PNW Invasive Plant EIS proposed action is to protect wilderness from establishment of non-native invasive plants and, where invasive plants are already present in wilderness, to limit the spread of the infestation, and ultimately to reestablish natural plant communities. The proposed action favors species that are native to wilderness and adversely affects invasive, non-native plants.

Does addressing this issue/problem or taking action contribute to protection of an enduring resource of wilderness for future generations?

Yes **XX** No **XX**

Taking action will protect natural conditions, but introduces human manipulation. Taking no action avoids manipulation of wilderness, but natural conditions are not protected. There are long term effects to wilderness no matter which approach is taken.

This analysis is structured to provide a range of alternatives so that effects to both naturalness and to freedom from manipulation can be minimized. The alternatives presented here are determined by the characteristics of the invasive plant being addressed and by the situation being addressed. The analysis also addresses

minimum requirement considerations regarding roads, structures or installations, motorized equipment, and mechanical transport.

Is this an issue for reasons other than convenience or cost of administration?

Yes **XX** No

As noted above, this is an issue that is being addressed so that, where necessary, an explicit choice is made to either protect natural conditions or to avoid manipulation in wilderness. The issue is not driven by convenience or cost of administration.

DETERMINING THE MINIMUM REQUIREMENT:
Minimum Requirement Alternatives

MINIMUM REQUIREMENT ALTERNATIVE #1:
No Treatment

Does this alternative involve:

Use of temporary road?	Yes	No	X
Use of motor vehicles?	Yes	No	X
Use of motorized equipment?	Yes	No	X
Use of motorboats?	Yes	No	X
Landing of airplanes?	Yes	No	X
Landing of helicopters?	Yes	No	X
Use of mechanical transport?	Yes	No	X
Creating a structure or installation?	Yes	No	X

Biophysical effects/benefits of this alternative:

Wilderness ecosystems would be free from herbicides, biocides, and from the manipulation that would result from these control methods. There would be no risk of herbicide effects to non-target species. Ecosystem adaptations to invasive plants would be free from human interference. Effects of invasive plants would be determined by competitive and other interactions. In extreme cases, invasive plants could alter natural plant communities, interact in unknown ways with native wildlife species, and alter ecological processes such as plant community dynamics and disturbance processes such as fire. In the most extreme situations invasive plants could irrevocably alter evolutionary processes.

Social/recreation effects/benefits:

People would not be exposed to herbicides or biocides in wilderness.

Invasive plants can create noticeable effects to wilderness. Direct physical effects to recreationists include effects of chemicals and spines, barbs, etc., of invasive plants. Noticeable changes could occur to natural conditions and processes that are expected as part of wilderness setting, resulting in a loss or reduction in the sense that wilderness is a predominately natural place.

Societal/political effects/benefits:

Wilderness will continue to be free to evolve and respond without interference from invasive plant treatments and will serve as a reference for comparison to areas that are treated. Competition and change introduced by invasive plants will continue. Those who believe that it is most important that wilderness remain free from management will favor this alternative. Those who believe that protecting natural conditions is most important will remain concerned about loss of native species and natural ecosystem processes, if these threats are present. Wilderness may be viewed as a source of invasive plants that threatens values on surrounding lands, both National Forest System and private.

Health and safety concerns/benefits:

No risk from herbicide or biocide application, either from the herbicide, biocide, or from treatment activities.

Economic and timing considerations/benefits:

There would be no cost for invasive plant treatment. If invasive plants in wilderness have potential to move to adjacent lands, ongoing costs of treatment on these lands and threats to values on these lands, both public and private, will be a concern.

MINIMUM REQUIREMENT ALTERNATIVE #2:

No Treatment except by manual control methods; no herbicide or biocide use.

Does this alternative involve roads, structures or installations, motorized equipment, or mechanical transport?

See *DETERMINING THE MINIMUM TOOL*, following the minimum requirement alternatives.

Biophysical effects/benefits of this alternative:

Wilderness ecosystems would be free from herbicides, biocides, and from the manipulation that would result from their use. There would be no risk of herbicide or biocide effects to non-target species. There would be a high probability for control of invasive plants responsive to manual control methods, and good probability for control of small initial infestations even of plants somewhat resistant to manual control methods if treatments can be applied soon enough and repeated often enough to eliminate the infestation. Some of the biophysical effects from invasive plants would be eliminated; typically in limited, localized areas.

Most invasive plants, however, are not responsive to manual control methods alone. For most invasive plant species, effects would be much the same as Alternative #1.

Social/recreation effects/benefits:

People would not be exposed to herbicides or biocides in wilderness and concerns about unknown effects of their use would be eliminated. Natural conditions would be preserved and protected in limited, localized areas where treatments can be applied soon enough and repeated often enough to eliminate infestations. For most invasive plant infestations, effects would be much the same as Alternative #1.

Societal/political effects/benefits:

Except for the limited number of cases where invasive plants are responsive to manual control methods alone, or where treatments can be applied soon enough and repeated often enough to eliminate an infestation, effects would be much the same as Alternative #1. There is likely to continue to be an issue that more than manual control methods should be used because many invasive plants are not responsive to manual control methods and because it is not always possible to detect infestations soon enough or to treat them often enough to make manual control methods successful.

Health and safety concerns/benefits:

No risk from herbicide or biocide application, or from treatment activities. Manual control methods may increase exposure of workers to risk and hazard from working in remote and rugged terrain and in difficult conditions.

Economic and timing considerations/benefits:

Manual control methods commonly require repeated treatments and therefore repeated costs. Rapid response and effective monitoring are more essential with a manual control strategy than with other treatment strategies. Except for the limited number of cases where invasive plants are responsive to manual control methods alone, effects would be much the same as Alternative #1.

MINIMUM REQUIREMENT ALTERNATIVE #3:

Treatment with herbicides or biocides only when :

- **Invasive plant establishment will likely expand to landscape scale**
- **Invasive plant has capability to displace native species and to alter ecosystem processes**

No herbicide treatment for invasive plants that do not have potential for landscape scale expansion and that do not have capability to displace native species or alter ecosystem processes

Utilize manual control methods wherever they have a high probability for success

Does this alternative involve roads, structures or installations, motorized equipment, or mechanical transport?

See *DETERMINING THE MINIMUM TOOL*, following the minimum requirement alternatives.

Biophysical effects/benefits of this alternative:

Wilderness ecosystems would be exposed to herbicides, biocides, and to the manipulation that would result from their use. There would be a risk of herbicide or biocide effects to non-target species. Ecosystem adaptations to invasive plants would be altered by human actions. The potential would be greatly reduced for invasive plants to alter natural plant communities, interact in unknown ways with native wildlife species, and alter ecological processes such as plant community dynamics and disturbance processes such as fire. The risk that invasive plants could irrevocably alter evolutionary processes would be greatly reduced.

By law and policy, biophysical manipulation of wilderness is generally not intended to occur (1964 Wilderness Act, 36 CFR 293.2, FSM 2320.2). Because biophysical manipulation of wilderness is uncommon, this treatment strategy would have to include provisions that specify exactly what the intended effects are (including treatment intensity and periodicity, and information on reference conditions for the intended effects), that insure the intended effects do occur and that unwanted effects do not, and that specify triggers for discontinuing treatment.

Social/recreation effects/benefits:

People would be exposed to herbicides or biocides in wilderness and concerns about unknown effects of their use would continue. Direct physical effects to recreationists from invasive plants (effects of chemicals and spines, barbs, etc., of invasive plants) and changes to the wilderness setting from invasive plants would be greatly reduced. In so far as native species and natural ecosystems are preserved, the sense that wilderness is a predominately natural place would be retained.

People would likely see treatment activities or see the effects of them. This evidence of treatment activities and effects will reduce the sense of solitude and that wilderness is a place free from human manipulation.

Societal/political effects/benefits:

It would be unlikely that wilderness would provide an opportunity to learn how ecosystems adapt to invasive plants without human interference. Those who think it is most important that wilderness be free from biophysical manipulation would strongly object to utilization of herbicides or biocides and be greatly concerned about any effects they have to wilderness. Those who most value natural conditions would likely tolerate use of herbicides or biocides if treatments show rapid and significant success in protecting and restoring natural conditions. Wilderness would be less likely to be viewed as a source of invasive plants that threaten surrounding lands, both National Forest System and private.

Health and safety concerns/benefits:

People would be exposed to risk from herbicide or biocide application, and from treatment activities. Manual control methods may increase exposure of workers to risk and hazard from working in remote and rugged terrain and in difficult conditions.

Economic and timing considerations/benefits:

There would be a cost for invasive plant treatment. Concerns would be greatly reduced regarding the potential for invasive plants to move to adjacent lands, for ongoing costs of treatment on these lands, and of threats to values on these lands, both public and private. Manual control methods commonly require repeated treatments and therefore repeated costs. Rapid response and effective monitoring are more essential with a manual control strategy than with other treatment strategies.

MINIMUM REQUIREMENT ALTERNATIVE #4:

Treatment with herbicides or biocides when:

- **Invasive plant establishment will likely expand to landscape scale**
- **Invasive plant has capability to displace native species and to alter ecosystem processes**
- **Invasive plants do not have potential for landscape scale expansion and that do not have capability to displace native species or alter ecosystem processes**

Manual control methods could be considered as an option to herbicide or biocide wherever they have a high probability for success

Does this alternative involve roads, structures or installations, motorized equipment, or mechanical transport?

See *DETERMINING THE MINIMUM TOOL*, following the minimum requirement alternatives.

Biophysical effects/benefits of this alternative:

This alternative would have similar effects o Alternative #3, except that wilderness ecosystems would be exposed to more use of herbicides or biocides and would experience more manipulation due to this increased use. This alternative could result in greater risk of effects to non-target species. Invasive plant control could have a higher probability of success with this alternative because use of herbicides or biocides would be less restricted and use of manual control methods would be optional. Because more invasive species are likely to be treated with herbicides or biocides, this alternative also reduces risk that the invasive potential of an introduced exotic plant has been underestimated.

By law and policy, biophysical manipulation of wilderness is generally not intended to occur (1964 Wilderness Act, 36 CFR 293.2, FSM 2320.2). Because biophysical manipulation of wilderness is uncommon, this treatment strategy would have to include provisions that specify exactly what the intended effects are (including treatment intensity and periodicity, and information on reference conditions for the intended effects), that insure the intended effects do occur and that unwanted effects do not, and that specify triggers for discontinuing treatment.

Social/recreation effects/benefits:

The effects of this alternative would be similar to Alternative #3, except that people would be exposed to more herbicides or biocides in wilderness and concerns about unknown effects of their use would likely make this approach very controversial. Direct physical effects to recreationists from invasive plants (effects of chemicals and spines, barbs, etc., of invasive plants) and changes to the wilderness setting from invasive plants would be most reduced by this alternative. Native species and natural ecosystems are most likely to be preserved by this alternative and therefore the sense that wilderness is a predominately natural place would have the highest probability of being preserved.

People would be more likely see treatment activities or see the effects of them under this alternative than under any other alternative. This alternative would have the most evidence of treatment activities and effects that reduce the sense of solitude and that wilderness is a place free from human manipulation.

Societal/political effects/benefits:

This alternative would be similar to Alternative #3, except that manipulation of wilderness would be a greater issue. Wilderness would not provide an opportunity to learn how ecosystems adapt to invasive plants without human interference. This alternative would be very controversial to those who think it is most important that wilderness be free from biophysical manipulation. This alternative would stretch the tolerance of even those who most value natural conditions in wilderness and agree that use of herbicides or biocides will be successful in protecting and restoring natural conditions. Wilderness would be treated much as other National Forest System lands and would not be viewed as a source of invasive plants that threaten surrounding lands, both National Forest System and private.

Health and safety concerns/benefits:

People would be exposed to the most risk from herbicide or biocide application under this alternative, and from treatment activities. Manual control methods would be optional and not likely to significantly increase exposure of workers to risk and hazard from working in remote and rugged terrain and in difficult conditions.

Economic and timing considerations/benefits:

This alternative would have the most costs for invasive plant treatment. Concerns would be most reduced under this alternative regarding the potential for invasive plants to move to adjacent lands, for ongoing costs of treatment on these lands, and of threats to values on these lands, both public and private.

DETERMINING THE MINIMUM REQUIREMENT

Guidelines for Selection of the Minimum Requirement Alternative

Identify the strategy that will have minimum impacts to wilderness. Select an alternative from the “*Minimum Requirement Alternatives*” in the previous section using the following guidelines.

MINIMUM REQUIREMENT ALTERNATIVE #1

No Treatment

Guidelines for selection of this alternative: This alternative is preferable only where an explicit decision has been made to accept loss of naturalness in exchange for allowing maximum freedom from manipulation, or where an invasive plant is unlikely to displace native species or to alter ecological processes.

MINIMUM REQUIREMENT ALTERNATIVE #2

No Treatment except by manual control methods; no herbicide or biocide use.

Guidelines for selection of this alternative: This alternative is preferable where an invasive plant species is responsive to manual control methods and where manual control treatments can be implemented in a timely manner and can be repeated as needed. Also consider this alternative where an invasive plant is unlikely to displace native species or to alter ecological processes, where the probability of success with herbicide or biocide is uncertain, where effects to non-target species from herbicide or biocide are a concern, or where an invasive plant is not completely responsive to manual control methods (or where responsiveness is uncertain), but where there is evidence that manual control methods might be successful. Also consider this alternative where manual control methods have been established as part of operation of a commercial grazing allotment in wilderness (FSM 2323.22).

MINIMUM REQUIREMENT ALTERNATIVE #3

Treatment with herbicides or biocides only when:

- Invasive plant establishment will likely expand to landscape scale
- Invasive plant has capability to displace native species and to alter ecosystem processes

No herbicide treatment for invasive plants that do not have potential for landscape scale expansion and that do not have capability to displace native species or alter ecosystem processes

Utilize manual control methods wherever they have a high probability for success

Guidelines for selection of this alternative: This alternative is preferable where an invasive plant species is not responsive to manual control methods or where manual control methods are unlikely to be successful (due to inaccessible

terrain, for example). It is also preferable for limited, localized infestations where control is likely to be successful to at least contain an infestation. Also consider this alternative where there is doubt regarding an invasive plant's ability to expand to landscape scale, displace native species, or to alter ecosystem processes. Also consider this alternative where these treatment methods have been established as part of operation of a commercial grazing allotment in wilderness prior to wilderness designation (FSM 2323.22).

MINIMUM REQUIREMENT ALTERNATIVE #4

Treatment with herbicides or biocides when:

- Invasive plant establishment will likely expand to landscape scale
- Invasive plant has capability to displace native species and to alter ecosystem processes
- Invasive plants do not have potential for landscape scale expansion and that do not have capability to displace native species or alter ecosystem processes

Manual control methods could be considered as an option to herbicide or biocide wherever they have a high probability for success

Guidelines for selection of this alternative: This alternative is preferable where an invasive plant is known to have the capacity to expand to a landscape scale, to displace native species, to alter ecosystem processes, and where an explicit decision has been made to accept manipulation in exchange for preservation of naturalness. Also consider this alternative as a conservative approach to protect naturalness where responsiveness to manual control is not known or where invasive characteristics of a plant are unknown, but evidence exists that the plant could expand to a landscape scale, could displace native species, or could alter ecosystem processes. Also consider this alternative where these control methods have been established as part of operation of a commercial grazing allotment in wilderness prior to wilderness designation (FSM 2323.22).

Note—this minimum requirement analysis does not address using a non-native species with less adverse effects than an invasive plant to control or prevent an infestation or to prevent expansion of an infestation. If the NEPA analysis is proposing to allow this treatment, that will have to be added. Also, that would be a Chief's authority in wilderness (FSM 2323.04b), so if we want to propose it in wilderness, we would have to decide how to involve the Chief in that part of the decision. Also, if we are proposing to manipulate vegetation in some other way (i.e. by a combination of mechanical treatment, prescribed fire, and planting or seeding) that would also be a Chief's authority.

These approaches represent a very intrusive form of manipulation or 'trammeling.' Consideration should be given to restricting these two approaches to areas outside wilderness.

**DETERMINING THE MINIMUM TOOL:
Are Roads, Structures or Installations, Motorized Equipment, or
Mechanical Transport Needed?**

“ . . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act.”

– Wilderness Act, 1964

Section 4(c) of the Wilderness Act of 1964 prohibits certain activities in wilderness by the public, and, at the same time allows the agencies to engage in those prohibited activities in some situations. Section 4(c) states:

“... except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.”

Therefore, unless a generally prohibited use is allowed by specific legislation, most of these activities are prohibited. However, in the above language, congress acknowledged that there are times when exceptions are allowed to meet the minimum required administration of the area as wilderness. The following worksheet is intended for use in determining whether or not an otherwise prohibited action is essential for implementation of the minimum requirement alternative for treatment of invasive plants.

Worksheet for Selection of the Minimum Tool

What is the method or tool that will allow the selected minimum requirement alternative to be implemented with a minimum of impacts to wilderness?

The selected minimum requirement alternative is # _____.

Does implementing this alternative involve any of these normally prohibited actions?

Use of temporary road.....	Yes	No
Use of motor vehicles.....	Yes	No
Use of motorized equipment.....	Yes	No
Use of motorboat.....	Yes	No
Landing of airplanes.....	Yes	No
Landing of helicopters.....	Yes	No
Use of mechanical transport.....	Yes	No
Creating a structure or installation.....	Yes	No
Other impacts to wilderness character _____.....	Yes	No

If the answer is yes to any of the above normally prohibited actions, specify why the action is essential for successful implementation of the selected minimum requirement alternative and is consistent with policy (see FSM 2320, 2323.22, 2324.04(b) 6, and 2326) and regulations (36CFR 293.6). Cost and convenience are not acceptable rationale for implementing prohibited actions in wilderness (FSM 2320.6).

Describe the specific operating requirements for implementing the normally prohibited action. Include information on timing, locations, type of actions, etc.

What are the maintenance requirements?

What standards and designs will apply?

Develop and describe any mitigation measures that apply.

What will be provided for monitoring and feedback to strengthen future effects and preventative actions to be taken to help in future efforts?