



Summary

This final environmental impact statement (FEIS) documents the analysis of the potential environmental consequences of the implementation of an integrated weed treatment (IWM) program for the Coconino, Kaibab, and Prescott National Forests. The FEIS has been prepared in compliance with the National Environmental Policy Act (NEPA) guidelines as set by the Council of Environmental Quality in 40 CFR 1500-1508 and Forest Service Handbook 1909.15. The six main chapters of this document describe the proposed action, purpose and need and significant issues, alternatives including the proposed action, affected environment, environmental effects, list of preparers, and adaptive management as well as monitoring. The appendix material includes such items as the proposed forest plan amendment; design features, best management practices, and mitigation measures; maps of noxious weed infestations; herbicide susceptibility of rare plants, cumulative impacts project list, agency letters, and response to comments.

Proposed Action

The Proposed Action would authorize treatment of noxious and invasive weeds ranging from a low of 2,000 acres per year to a high of 10,000 acres per year of which 65 percent is projected to include some herbicidal use. The various methods analyzed include manual, mechanical, cultural, biological, and herbicidal. The majority of treatments will be found along major roads and within the ponderosa pine type in the Verde River and Little Colorado River basins. Adaptive management—where treatment of new species that may become established, new herbicides which are not considered in this analysis, and the concept if the proposed treatment identified fails, alternative strategies will be developed to address this problem—is also a component of the Proposed Action.

Purpose and Need

Existing conditions within the project area indicate that weeds have expanded to 187,500 acres or 3 percent of the land area. Bull thistle, leafy spurge, various knapweed species, and Dalmatian toadflax have made dramatic increases over the past 20 years. Riparian corridors, especially the Verde River, have been noted with increases in tamarisk, Russian olive and tree of Heaven, as well as some of the knapweeds. There are currently 25 known weeds found within the 3 national forests and 4 species adjacent to them. The desired condition is to prevent any new plants from becoming established on national forest lands. Eleven species (98 percent of the infested acres) have been assigned a contain/control objective; an additional 10 species are targeted for complete eradication; and 1 species (representing about 1 percent of the infested acres) is assigned an eradicate/control objective. The control of these plants would promote ecosystem health and prevent losses in the productive capacity of the land. These actions would also avoid a decline in riparian values within the project area.

Decision to be Made

The forest supervisors of the Coconino, Kaibab, and Prescott National Forests are the responsible officials for this proposal. They will decide whether to implement the Proposed Action or another action alternative as defined, or not at all (no action).

In addition, within Forest Service lands where the Federal Highway Administration (FHWA) is authorized to maintain right-of-way clearings or noxious weed control through the use of

herbicides under the Decision Notice and Fonsi¹ signed by Karl Sidarits, Tonto National Forest Supervisor, on May 27, 2004, FHWA will make the decision regarding use of herbicides and ask for concurrence from the appropriate forest supervisor(s).

Public Involvement

Scoping shall be an early and open process for determining the scope of the issues to be addressed and for identifying the significant issues related to the Proposed Action (40 CFR 1501.7). Initial scoping began on August 31, 1998, when a proposal for the treatment of noxious weeds was mailed to concerned citizens, Federal, and State agencies, and environmental organizations identified within the forests' NEPA mailing lists. The 1998 proposed action called for the herbicidal treatment of noxious weeds at the rate of 2,000 acres per year over a 5-year period confined solely to major transportation and utility corridors, which are the most prone to invasion.

Based upon public comment received during the first round of scoping, the forests decided to formulate a new Proposed Action and submit it for further public review, and to prepare an environmental impact statement instead of an environmental assessment. Since the 1998 proposal did not address noxious weeds at an adequate level to establish sufficient control, the purpose and need for action was expanded from right-of-way corridors to the entire land base within the 3 national forests.

In May 2001, prior to the development of the new proposal, we mailed a project update letter to over 1,900 individuals, groups, and other governmental organizations in which we detailed the process and timelines the agency was going to follow. We received about 450 responses from people who indicated they wanted to continue their involvement in this process.

In early June 2001, we mailed the new proposal to those responding to our first update letter. We also filed the Notice of Intent to Prepare an Environmental Impact Statement with the Federal Register that was published on June 26, 2001. On June 11, 2001, we sent a news release to local papers and completed interviews with several television and radio stations about the project. The Associated Press conducted several interviews concerning the proposal and submitted those articles for national release.

We conducted four informational meetings with people concerned about multiple chemical sensitivities. These meetings were held on March 19, 1999, February 13, 2002, April 14, 2004, and April 31, 2004 to solicit issues regarding the Proposed Action and gather information related to the use of herbicides.

The Forest Service initiated tribal consultation in August 1998, when the first Proposed Action was mailed. In June of 2001 the Forest Service sent the revised proposal to a total of 13 American Indian tribal governments that are located in central and northern Arizona. The project has been listed in the forests' annual NEPA project consultation lists since 1999 (Pilles 2004, Schroeder 2004). Thirteen tribal entities are routinely sent a copy of the consultation list and letter. As a followup to the consultation letters, the forests usually held annual meetings with the Havasupai Tribe, Hopi Tribe, Kaibab Band of Paiute Indians, Yavapai-Apache Nation, and the Yavapai-Prescott Tribe. The use of herbicides has been routinely mentioned and discussed at those

¹ Environmental Assessment for Management of Noxious Weeds and Hazardous Vegetation on Public Roads on National Forest System Lands in Arizona.

meetings (Pilles 2004). Through the consultation process, the forests received responses and information from several American Indian tribal governments concerning the potential effects of herbicides on the health of individuals who collect and use traditional plants.

At the conclusion of the second round of scoping, the Forest Service Interdisciplinary Team prepared a list of issues to be used in the development of alternatives and to assist in the focus of the analysis. From this effort one alternative was formulated to address Native American concerns related to the use of herbicides and the health of individuals collecting plants from these zones or adjacent to them. At the conclusion of the analysis in March 2004, the draft environmental impact statement was released. This was sent to 12 American Indian tribal governments and 9 chapters of the Navajo Nation, and comments were invited from tribal authorities.

Issues

Based on the assessment of comments, the interdisciplinary team identified three significant issues that were subsequently approved by the responsible officials. The issues used in the development of alternatives for this FEIS are as follows:

1. Use of herbicides could limit individuals with multiple chemical sensitivity (MCS) and other people vulnerable to chemicals from using travel corridors and National Forest System lands in general, thus limiting their access to vital services and recreational opportunities.
2. The use of herbicides for noxious weed control may cause varying health effects for people who come into contact with the herbicides and/or treated areas.
3. The proposed application of herbicides for noxious weed control may affect the ability of American Indians and others to collect plants for traditional uses or medical reasons in specific areas.

Alternatives

All action alternatives include a nonsignificant forest plan amendment for the Coconino, Kaibab, and Prescott National Forests (Appendix A).

Proposed Action – Alternative 1

The Coconino, Kaibab, and Prescott National Forests would authorize new treatments of weeds on a series of infestations ranging from an estimated low of 2,000 acres per year to a projected high of 10,000 acres per year (depending on annual budgets) scattered throughout the 3 national forests. Because a range was presented in the Proposed Action, both ends of the range were analyzed separately to show the extent of effects. The analysis of treating 2,000 acres per year is referred to as Alternative 1-Low and correspondingly 10,000 acres per year is referred to as Alternative 1-High. The various methods that will be analyzed under an integrated weed treatment approach include manual, mechanical, cultural, biological and herbicidal. This includes wilderness and other special designated areas. There will be no aerial application of herbicides by either fixed-wing or rotary aircraft. In addition, there will be no aquatic applications of herbicides. The majority of treatments will be found along major travel corridors (e.g., railroads, interstates, and state highways as well as Level 3 and 4 roads on the forests) and within the ponderosa pine vegetation type in the Verde and Little Colorado watersheds. If approved, project

operations would begin in fiscal year 2005 and would continue for the next 5 to 10 years, barring any significant environmental changes. Adaptive management is a component of this alternative.

No Action – Alternative 2

This alternative is required by regulation (Code of Federal Regulations 1502.8) and would call for no IWM treatments applied to any National Forest System lands except for those Forest Service parcels under authority of the Federal Highway Administration. In this situation, the authority to undertake treatments are vested within the Federal Highway Administration, and the only requirement is that they consult with the appropriate forest supervisor prior to the action being implemented.

No Herbicide Alternative – Alternative 3

This alternative would rely on all treatment methods except for herbicidal. This alternative does not have any cap on the acres treated, as Alternative 1, and was formulated to fully address the comments related to the use of herbicides on national forests as well as multiple chemical sensitivity concerns associated with access and tribal issues concerning collection of traditional plants (significant issues 1, 2, and 3). Adaptive management is a component of this alternative although herbicide use is excluded. It was also designed, to the best degree possible, to meet the purpose and need of the proposed project. This alternative would treat 23,410 weed infested acres on the ground with repeat treatments over the next 10 years. This would require 211,475 acres of total treatments (or more than 8 revisits per site); the amount of manual, mechanical, cultural, and biological treatments is roughly 39,000 acres, 132,000 acres, 23,000 acres, and 17,000 acres, respectively.

Preferred Alternative – Alternative 4

This alternative was also established to address the three significant issues; however, unlike Alternative 3, this action includes the option of herbicide use. Herbicide treatments within the rights-of-ways on interstates, U.S. highways, and State highways are covered under the “Environmental Assessment for Management of Noxious Weeds and Hazardous Vegetation on Public Roads on National Forest System Lands in Arizona” (USFS 2003a).

This alternative would treat 31,047 weed infested acres on the ground with repeated visits over next 10 years. This would require 124,050 acres of total treatments (or approximately 4 revisits per site); about 14,000 acres would be treated manually, 18,000 acres mechanically, 14,000 acres culturally (including revegetation), 16,000 biologically, and 57,000 acres with herbicides. Adaptive management principles apply.

Limited spray zones would be established adjacent to and within 1 mile of communities, recreation sites, trailheads, and scenic overlooks. Sites where nonherbicidal treatment methods will be effective due to species, population size, or site factors will be targeted for all integrated weed treatment methods except herbicides. Herbicides will be authorized in limited spray zones if the inventoried species include deep-rooted perennial weeds where treatment objectives cannot be met using manual techniques. Any proposed use of herbicides in right-of-way corridors under national forest jurisdiction would be coordinated, publicly posted, and completed in such a manner that alternate routes would remain accessible until the manufacturer’s re-entry period is met.

Communication systems will be established to notify individuals and groups who are collecting plants or traveling through zones where herbicides are scheduled for use. Proposed treatment plans will be posted on the World Wide Web and updated regularly to show time periods during which certain areas could be treated. This information will also be available on a 1-800 phone number. Specific actions will also be included and identification of alternative routes around the treated zones, if available.

Summary of Potential Environmental Impacts

Analysis of potential impacts and mitigation associated with the Proposed Action and alternatives is presented in Chapter 4 of the FEIS. The following is a summary of the potential impacts, by resource area, that we predict will result from implementation of either the Proposed Action or one of the other alternatives.

Watersheds, Vegetation, Special Designation Areas, and Weeds

Selection of Alternative 1 (high and low levels of treatment), Alternative 3, and Alternative 4 would begin treatments on weeds found in the project area. The total amount of treatments would range from 76,515 acres for Alternative 1-Low to 211,475 acres scheduled for Alternative 3. Both Alternatives 1-High and 4 are similar in the total amount of work with Alternative 1-High projected at 115,515 acres whereas Alternative 4 is targeted at 124,050 acres. Over 90 percent of all treatments are confined to the riparian, ponderosa pine/oak, and high elevation grassland terrestrial ecosystems of the Verde River and Little Colorado River watersheds. Herbicide treatments for Alternatives 1 (High and Low) and 4 account for 65 percent, 51 percent, and 50 percent of all scheduled work, respectively.

Watershed and vegetation conditions, as well as special designation areas' values, will be maintained at current levels or improve slightly under Alternatives 1-High and 4. Projected declines in these resources are predicted if Alternatives 1-Low, 2 (No Action), or 3 are selected. Only Alternatives 1-High and 4 treat enough area with the appropriate integrated weed treatment techniques to achieve the identified control objectives for most species and begin a reversal in the total area infested by these plants. Alternative 1-Low, which caps the new treatments to 2,000 acres per year, and Alternative 3, which eliminates the use of herbicides, encourages the expansion of noxious weeds by 133,775 acres and 8,370 acres over the next 10 years. Alternative 4 also calls for 4,000 acres of treatments of nonnative annual grasses.

Of the 22 noxious weeds proposed for treatment, Alternatives 1 (High and Low), 3, and 4 achieve control objectives on 20, 15, 13, and 22 weeds, respectively. Alternative 2 would allow the increase of weeds from the current level of 187,500 acres to approximately 340,600 acres at the conclusion of the planning period. All four weeds that are currently found adjacent to the project area are predicted to eventually infest the forests if Alternative 2 is implemented. Costs associated with Alternative 1 (High and Low) are about \$9,526,000 and \$6,800,000 whereas Alternative 3 is determined to be \$24,485,300. Alternative 4 costs are estimated at \$12,213,200, with an additional \$451,000 tied to the control work of nonnative annual grasses.

Endangered, Threatened, Candidate, Sensitive, and Management Indicator Plant Species

There will be no measurable direct or indirect impacts from the treatment methods planned for Alternatives 1, 3, and 4 with design features and mitigation in place, although implementation of

any action considered could result in minor effects on rare plants. We foresee a low likelihood of herbicides impacting these species since the herbicides proposed for use in and around these populations are the most effective products for treatment of the weed species while at the same time would have the least impact on listed, candidate, or sensitive plants. Those rare species habitats where weeds are presently found and have herbicides scheduled include Arizona cliffrose, Rusby milkvetch, Disturbed rabbitbrush, Arizona bugbane, Mogollon thistle, Heathleaf-wild buckwheat, Ripley's wild buckwheat, Flagstaff pennyroyal, Arizona sneezeweed, giant lupine, Sunset Crater beardtongue, Flagstaff beardtongue, Hualapai milkwort, and Mearns sage. Manual or mechanical treatments may pose a slightly higher risk, since seedlings are extremely difficult to identify and they may be accidentally pulled when treatments of this type occur. We foresee habitat for rare plants improving as control objectives are met. We predict that Alternative 4 would improve habitat for rare plants to the highest degree, and next in order of improvement would be Alternative 1-High, Alternative 3, and Alternative 1-Low. Control of invasive weed species will maintain or improve the overall native plant diversity within habitats of rare plants allowing them to grow without interference of aggressive nonnative competitors. We predict that Alternative 2 (No Action) will have the greatest negative impact since all 25 weed species will expand in their densities and, we suspect, begin influencing the reproductive success of rare plants. Except for Alternative 4, treatments on nonnative annual grasses are not a component of any other action. These species will continue to expand over the next 10 years and eventually change the frequency of wildfire events contributing to declines in rare plant habitat.

Endangered, Threatened, Proposed, Candidate and Sensitive Fish Species

There would be no direct effects to TE&S fish species for Alternatives 1, 3, and 4 because no treatments would occur within the aquatic habitat. Herbicidal treatments in Alternatives 1 and 4 would implement project design features that would minimize the toxicity and exposure of herbicides to such small levels as to have an immeasurable effect to the species or its habitat. Use of manual, mechanical, or cultural treatments for Alternatives 1, 3, and 4 would result in short-term, localized impacts to vegetation and soil. Implementing Best Management Practices would minimize runoff and soil erosion off of treatment areas so that any sediment moving into species' habitat would be such small amounts as to have an immeasurable effect to the species or its habitat. Restoration and/or maintenance of native plant communities as a result of invasive weed control would benefit TE&S fish aquatic habitats in the long term. Alternatives 1-High, 3, and 4 would maintain aquatic habitat conditions for TE&S fish and/or critical habitats (CH) and would not impact existing fish species composition and population trends of TE&S fish in the project area.

Selection of Alternative 1-Low or 2 would result in the continued expansion of weeds throughout the project area and riparian corridors. This could result in small changes in existing aquatic habitat conditions from expansion of weeds leading to long-term degradation of riparian conditions and the potential for increased fire frequency that could increase sediments and nutrients into streams and impact TE&S fish and their habitat. These impacts are expected to be small in size and localized across the project area. Alternative 1-Low and 2 would have minimal impacts to CH and existing fish species composition and population trends of TE&S fish in the project area.

Endangered, Threatened, Proposed, Candidate, Sensitive and Management Indicator Wildlife Species

The primary impact from implementing the action alternatives 1, 3 and 4 is disturbance from people and or equipment during treatments. Most treatment areas are small and do not have essential wildlife habitat. For those treatments located in or near breeding areas where disturbance is a concern, the design features in Appendix B would reduce the impacts from the treatments to a level that would not likely have detrimental impacts to the species using those areas. The design features include nest buffers, breeding season timing restrictions, and limiting application methods.

Impacts from herbicides in Alternatives 1 and 4 are also reduced or eliminated by the design features in Appendix B. Through intensive consulting with the USDI Fish and Wildlife Service, Table 26 lists which herbicides may be used in particular Federally listed species' habitats. This information was also used to set the parameters for herbicide use in sensitive species' habitats.

Impacts from biological controls in the action alternatives 1, 3 and 4 would be limited to the disturbance associated with putting the agents in place. Approved agents have been documented not to have unwanted effects to nontarget species.

Impacts from cultural treatments would vary by method and be addressed in a site specific analysis.

Impacts from no treatments in the No Action Alternative 2 would result in the small limited noxious or invasive weed populations expanding into more important wildlife habitat areas. There is great potential for extensive weed populations to change the plant species composition so drastically as to influence many animal species directly and indirectly. Loss of forage production would have a direct negative impact on grazing ungulate MIS species. Loss of grasses and forbs may have a direct negative impact on small mammals and birds with regard to their food and cover. This would then have an indirect negative impact to some predatory raptors, most notably northern goshawks and Mexican spotted owls. Lack of tamarisk treatments in riparian corridors could lead to loss of entire native riparian ecosystems along the Verde and other rivers. Loss of nesting, feeding and hiding habitat could have negative impacts to a wide variety of riparian dependent species. Lack of action now to control the existing weed populations could forego opportunities to do so in the future.

The preferred alternative would not have any adverse effects to any Federally listed or proposed species. The preferred alternative would not trend toward listing any Forest Service sensitive species. The preferred alternative would not have a negative impact to the population trend or available habitat for any MIS on any forest. The preferred alternative would not have any damaging impacts to any migratory bird species.

Public Health, Access to Vital Services, Forest Service Recreation Sites, and Plant Collection

Implementation of Alternative 1 (High and Low) would authorize 12,675 acres of right-of-way treatments on major road corridors like Interstates 40 and 17 with an additional 2,550 acres scheduled for roads under Forest Service jurisdiction. The amount of herbicide treatments within these travel influence zones under the FHWA and Forest Service control is 11,265 acres and 1,240 acres, respectively.

Additional herbicide treatments are targeted mainly for the riparian, ponderosa pine/oak, and high elevation meadow ecosystems and account for 90 percent of the 74,920 acres scheduled at the high level of Alternative 1 and 38,735 acres projected for the low. We anticipate that 62,035 acres of herbicide treatments, of which 1,240 acres are associated with paved Forest Service roads, in Alternative 4 to reach treatment objectives.

Human health effects resulting from application of herbicides are not expected due to this project. The low application rates and total area where treatments will occur are not going to exceed the reference dose or allow enough exposure time to even remotely approach no observable effect level (NOEL). Those individuals undertaking the applications are the most at risk; proper training and the use of personal protective gear will reduce the hazard to these individuals to very low levels. The potential will always exist for individuals to inadvertently move into a recently sprayed zone. However, with appropriate design features related to signing and public notification (see Appendix B), contact with recently sprayed sites will be reduced to a minimum.

Alternative 4 establishes approximately 818,000 acres of limited spray zones around communities and Forest Service recreation sites to limit potential reactions for those individuals who have compromised immune systems. Within these zones, except where we find deep-rooted perennials, we will use other integrated weed treatment techniques like manual or mechanical first and limit the use of herbicides. Only 10 percent of the project area recreation facilities are predicted to be impacted at any point in time by the application of herbicides, and alternate routes around these zones will be designed. Alternatives 2 and 3 would not limit individuals from accessing campgrounds, trailheads or overlooks since herbicide use is not a component of either action.

Collection of plants by American Indians or others will not be impacted with implementation of any action alternative. Health risks will be mitigated under Alternatives 1 and 4 as discussed above. New treatments range from a minimum of 20,395 acres for Alternative 1-Low to a high of 34,130 acres associated with Alternative 1-High. This includes all integrated weed treatment techniques. This extremely limited amount of treatment acres spread out over 4.9 million acres of the project area is not expected to cause a decline in plant species collected for medical or ceremonial purposes. Those species are typically native plants that would not be targeted in any of the proposed treatments. Control of weeds would enhance the availability of plants desired for medical or ceremonial purposes by improving their habitat and removing the possibility of weeds replacing desired native plants. The highest probability for losses of native plants will occur if either Alternative 1-Low or Alternative 2 is selected. Under both actions weeds are predicted to expand to 340,000 acres or 321,000 acres, respectively. At some point the nonnatives will begin influencing the reproductive success of our native plants causing an overall decline in diversity population numbers of native plants.

Agency Preferred Alternative

The agency preferred action is Alternative 4.