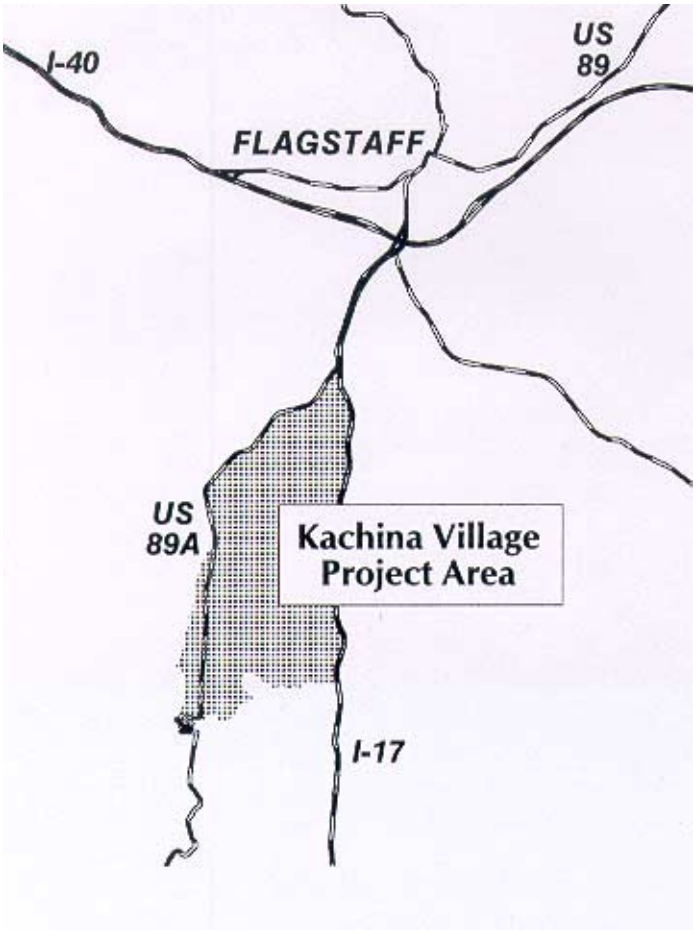
Kachina Village Forest Health Project

June 2001

Proposed Action

Who: The U.S. Forest Service, Mormon Lake and Peaks Ranger Districts, in cooperation with the Grand Canyon Forests Partnership, recommends the following proposal.

Where: The Kachina Village Forest Health Project is located south of Flagstaff Arizona on the Mormon Lake and Peaks Ranger Districts. The project area is located adjacent to the communities of Kachina Village and Forest Highlands and includes Pumphouse, Kelly, and James Canyons. The entire project encompasses 10,417 acres: Private Land 2,363 acres, State Land 329 acres, and Forest Land 7,725 acres. The Coconino National Forest Land Management Plan (LMP) includes portions of the following Management Areas: MA3, MA4, MA6, MA9, MA12, MA15, and MA17.



What: Management actions will include the use of prescribed fire, thinning from below, and access and recreation management to address declining and poor forest health,

and high fire hazard conditions on National Forest Lands within the Kachina Village project area. Thinning from below employs thinning techniques where trees selected for removal are from suppressed canopy positions. Thinning from below results in the removal of smaller, unhealthy trees first and progresses until the target density is reached.

Treatments will include and are proposed as follow:

I. Administrative and Strategic Direction for the Project Area

1. Follow all Coconino National Forest LMP Standards and Guidelines. This is the application of the Coconino National Forest LMP and subsequent amendments, including all guidelines for Mexican spotted owl, Northern goshawk, Management Indicator Species, Best Management Practices for Water and Soil, and Archeological site protection.

2. Retain all existing mature ponderosa pine trees or old "yellow-barked" trees that are approximately 150 years old or older.

Thinning objectives will be met by primarily thinning smaller diameter ponderosa pine trees. We estimate that approximately 90% of the trees to be thinned will be smaller than 12 inches dbh (diameter at breast height). Ponderosa pine trees greater than 16 inches dbh will be retained where possible. Some black-barked trees in excess of 16 inches dbh may be removed to achieve the desired objectives of creating grassy openings or enhancing existing forest openings, or to enhance growth and health within larger groups. Some trees greater than 16" will be retained on site to create logs and snags (See Item #17).

Temporary road or landing locations to achieve removal objectives will avoid large diameter trees where possible.

3. Prioritize project implementation by treating stands adjacent to communities first, and then progressing south thereafter.

4. Involve individual property owners, fire protection districts, and communities in the proposed treatments. Currently, Highlands Fire Department is actively working in the communities of Kachina Village and Forest Highlands, conducting thinning projects and increasing public awareness of fire prevention techniques.

5. Protect historical and cultural resources through the creation of an Archaeological Clearance Report for the Kachina Village Project. This report will document the archaeological inventory, results of consultations with Native American Tribes, and compliance with the National Historic Preservation Act of 1966, as amended. The report will contain site-specific protection measures for implementation, including monitoring requirements.

6. Encourage research and monitoring. The Arizona Game and Fish Department, Northern Arizona University, and the Rocky Mountain Research Station have expressed interest and discussed preliminary actions for research in the project area. Possible research studies may include: Mexican spotted owl studies to examine the effects of fuel reduction treatments; black bear, turkey, antelope, Abert squirrel, and songbird studies to evaluate the effects of the project; and further studies by Northern Arizona University to evaluate and compare the ongoing research and monitoring of adaptive management strategies for the Grand Canyon Forests Partnership Projects.

7. Apply thinning systems to sites as appropriate. Thinning systems will include mechanized equipment resulting in commercial removal of trees; hand felling for commercial uses; as well as public firewood use. Some trees will be piled and burned on site.

II. Reducing Fire Potential – Improving Forest Ecosystem Health – Fuels and Vegetation Management (Map 1-Fuels and Vegetation)

8. *Broadcast Burning and Slash Treatment*
Following thinning activities, prescription burning will begin adjacent to the communities and progress south thereafter. All Forest Lands, excluding the canyons within the project area, are proposed for broadcast burning in the following priority:

- First priority are areas north of Kelly Canyon and along the Highway 89 Corridor;
- Second priority is the area between Kelly and James Canyons; and
- Third priority is the area south of James Canyon.

Activity generated slash resulting from the thinning will be treated through machine piling or by hand. Existing large logs and logs created will be retained. The majority of the slash from thinning will be piled in a manner that minimizes soil disturbance. Some small coarse woody debris will be retained on the ground to meet Best Management Practices for soil and watershed health. The majority or nearly 80% of the slash created will be treated. The slash piles will be burned approximately one to two years following the thinning. Public fuel wood will be made available from slash piles where feasible. Broadcast burning will occur after thinning is completed. Best Management Practices for soil and watershed management will be employed to minimize soil disturbance and spread of noxious weeds.

9. *Thinning from Below – North of Kelly Canyon and Lower 89A Corridor*
1,923 acres of thinning from below is proposed for areas north of Kelly Canyon and along the Highway 89A Corridor. The thinning will focus on reducing wildfire potential by reducing ladder fuels and breaking up continuous crown canopy. The thinning of small trees will develop clumps of trees in a mosaic of

various densities, ranging from 40 - 120 ft^2 basal area*. The clumps will be selected based on existing structure. Canopy closure will be reduced to 40 – 50%, with crown base height raised to an average of 15 feet. All old trees will be deferred from treatment and remain on the site. Thinning will occur around the old trees to reduce competition for light, moisture, and nutrients to improve their longevity. Approximately 10% of the area will be managed to provide for grassy openings. Grassy openings will be managed by using the existing areas on the landscape where open areas may have occurred in the past or have been created. Trees around the edges of the openings or within the interior of the opening will be removed to expand the size of the opening. The openings will be irregular in shape to create stringers of openings that will improve the understory and reduce fire potential. Thinning will also occur around large Gambel oak trees (greater than 10" dbh) and clumps to improve their longevity. No Gambel oaks will be cut. This thinning will be very similar to the thinning proposed around the old trees. Thinning will enhance vigor and growth of oak in the area and reduce fire potential. Removing the pine canopy surrounding the Gambel oak will reduce fire laddering potential.

10. *Thinning from Below – Dense Canopy Retention for Improving Forest Resiliency of Goshawk Habitat*
124 acres will be thinned within Northern Goshawk Post Fledging Areas (PFAs) to lessen fire potential by removing ladder fuels and creating some canopy breaks. Scientists who developed management recommendations for this species recommend this type of treatment to reduce fire potential and improve Northern goshawk habitat. A more dense stand or stand with higher canopy closure will exist after treatment than is prescribed for much of the area surrounding this PFA (as described above). Canopy cover will average 60% within the 124 acres of treatment.

10. *Thinning from Below – Improving Old Tree Longevity and Gambel Oak Habitat*
418 acres of thinning from below within and around mature ponderosa pine trees and Gambel oak will be conducted. In these stands, there are opportunities to conduct limited thinning around the old trees and Gambel oak to improve their longevity. Openings created around Gambel oak and mature ponderosa pine will reduce fire potential, decrease competition for sunlight, moisture, and nutrients, and create grassy openings. Where opportunities arise to improve the distribution and abundance of openings in these stands, additional thinning may occur.

11. *Thinning from below – Griffiths Spring Drainage*
81 acres of thinning trees less than nine inches dbh will occur along the Griffiths Spring drainage. The light thinning is proposed to reduce fire potential and balance visual quality concerns in a heavily used area.

* Basal area is a measure used to describe tree density. Basal area can be visualized as the amount of ground that is covered in wood. Higher basal areas mean more trees are left (higher densities) than lower basal areas (lower densities).

12. *Thinning from below – South of Kelly Canyon*

1,419 acres of thinning from below will occur south of Kelly Canyon, between James and Kelly Canyons, and South of James Canyon to lessen fire potential. Along the rims of the canyons, a fire line approximately three feet wide will be constructed. The fire line will be built with a drag, small bobcat, or by hand crews. The fire line will be constructed approximately 200 - 300 feet above the steep break of the canyon below. The 200 - 300 foot area between the edge of the canyon and the fire line will assist in prescribed burning activities and will maintain key habitat for bear and turkey utilizing the edges of the canyons for wildlife movement. Beyond this fire line, the ridge between James and Kelly Canyons and south of James Canyon will be thinned to create an open ponderosa pine habitat with dense cover patches. Up to 25% of the area will be in dense patches, variable in size, with a minimum of 35-trees/dense clumps (small clumps). The size of these clumps will vary from approximately $1/10^{th}$ acre to approximately one acre. Some light thinning may occur within the patches to reduce ladder fuels or remove trees with poor crown development. The clumps will be closed canopy clumps, with the limbs and needles of the trees interlocking. These clumps are important to a variety of bird species and to Abert squirrel and deer for bedding. The dense clumps will be selected using the existing vegetation or existing structure and consideration of fire hazard. Around these dense clumps, the area will be open ponderosa pine habitat. The thinning around the clumps will maintain tree densities varying from 40 – 100 ft^2 basal area. The savannah or open area around the clumps will reduce fire potential, increase the herbaceous understory, and benefit wildlife species, such as blue birds, rabbits, turkey, and deer, requiring open habitats for foraging.

As described above for areas north of Kelly Canyon, the following will also occur south of Kelly Canyon. All old trees will be deferred from treatment and retained. Thinning will occur around the old trees to improve their longevity by reducing competition for light, moisture, and nutrients. Approximately 10% of the area will be managed to provide for grassy openings by using the existing areas on the landscape where grassy openings may have occurred in the past or have been created. Trees around the edges of the openings or within the interior of the opening will be removed to expand the size of the opening. The openings will be irregular in shape and will create stringers of openings to improve understory development and reduce fire potential. Thinning will also occur around large Gambel oak trees and clumps to improve their longevity. This thinning will be similar to the thinning proposed around the old trees. No Gambel oaks will be cut. This will enhance vigor and growth of oak in the area and reduce fire potential. Removing the pine canopy surrounding the Gambel oak will reduce fire laddering potential.

Site-specific implementation will include layout and assistance with marking and thinning from the Arizona Game and Fish Department and U.S. Forest Service Wildlife Biologists.

13. *Thinning from Below – Mexican Pocket*
Within the Mexican Pocket area, thinning similar to that proposed for areas South of Kelly Canyon will be conducted. However, the dense cover patches, as described above, will be focused on north-facing slopes. The dense patches will be less evenly distributed. 246 acres of this area has a high density of old, yellow pine clumps, providing for more dense patches throughout much of the area. These old, yellow pine groups will be maintained. Thinning around the groups will help improve their longevity, lessen fire potential to the groups, and improve aesthetic values in the area.

Site-specific implementation will include layout and assistance with marking and thinning from the Arizona Game and Fish Department and U.S. Forest Service Wildlife Biologists.

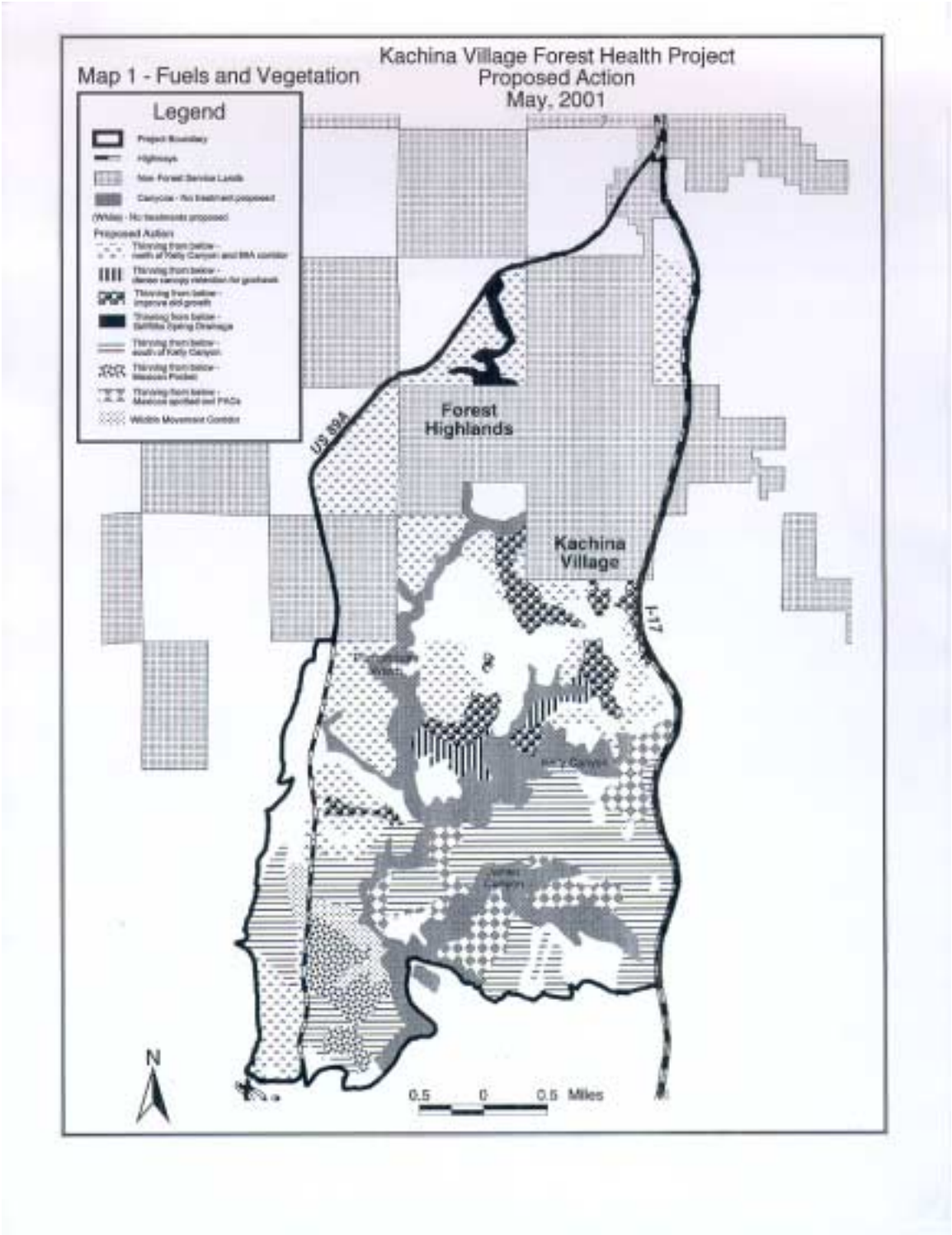
14. *Thinning from Below – Mexican Spotted Owl (MSO) Protected Activity Centers (PACs)*
446 acres of thinning from below is proposed for habitat within Mexican spotted owl PACs. A special team, including U.S. Fish and Wildlife Service personnel, Arizona Game and Fish Department Habitat Specialists, U.S. Forest Service Biologist, and fire management practitioners, are visiting all stands within MSO PACs and recommending site-specific treatments to lessen fire potential and risk. Specifics for treatments are located in the Project Record File. All stands are located on slopes less than 30%. Proposed management includes thinning trees less than nine inches dbh, broadcast burning, and road access management to reduce fire risk. The key to implementation of site-specific thinning includes layout and assistance during thinning by U.S. Fish and Wildlife Service, U.S. Forest Service, and Arizona Game and Fish Department personnel.

15. *Wildlife Movement Corridor*
The Arizona Game and Fish Department and U.S. Forest Service Biologists identified the location of this wildlife movement corridor based on historical knowledge of the area. The treatment within the corridor will include light thinning within the drainage and will include the area 200 yards on either side of the drainage located in these two stands. The remainder of the stand will be treated similar to that proposed for areas in #11 above. The site-specific layout will include assistance from the Arizona Game and Fish Department and U.S. Forest Service Wildlife Biologists.

16. *Herbaceous Understory Recovery*
Wildlife and livestock grazing will be evaluated and adjusted to reflect the need for establishment of naturally occurring herbaceous communities. The Annual Operating Instructions for specific grazing allotments will be adjusted as needed to allow for recovery of areas that are thinned and prescribed burned. The Arizona Game and Fish Department will monitor elk populations and assist with hunting recommendations within the project area.

17. *Creating Logs and Snags*

Snags and logs will be created from some of the 16" dbh black– barked trees, as we work towards meeting guidelines for these habitats. Emphasis for snag and log recruitment will be areas south of Kelly Canyon, Northern goshawk PFAs, and developing old growth. Data has been collected on existing log, snag, and yellow-barked trees and will be used to select recruitment areas and describe recruitment densities.


Map 1 - Fuels and Vegetation
Kachina Village Forest Health Project
Proposed Action
May, 2001
Legend
Project Boundary
Highways
Non-Forest Service Lands
Canyons - No treatment proposed
(White) - No treatments proposed
Proposed Action
Thinning from below - north of Kelly Canyon and WA corridor
Thinning from below - denser canopy retention for goshawk
Thinning from below - improve old growth
Thinning from below - Saltillo Spring Drainage
Thinning from below - south of Kelly Canyon
Thinning from below - Mexican Pocket
Thinning from below - Mexican spotted owl PACs
Wildlife Movement Corridor
Forest Highlands
Kachina Village
I-17
N
0.5 0 0.5 Miles

III. Reducing Fire Risk – Balancing Human Influences, Fire Occurrence, Wildlife Habitat, and Watershed Health Through Management of Recreational Uses and Access (Map 2 – Recreation. Map 3 - Open Forest Road System)

18. *Camping and Campfires*

Camping and campfires will be prohibited in the area north of Kelly Canyon and west of Pumphouse Wash to ½ mile on the west side of Highway 89A, except in designated areas. Camping and campfires will be prohibited in areas of close proximity to Kachina Village and Forest Highlands. These prohibitions are important tools in reducing the risk of a human-caused fire and will also address public comments received during public participation for the Flagstaff Lake Mary Ecosystem Assessment.

Camping and campfires will also be prohibited on the first ½ mile of the 535 road as it departs Highway 89A. This is proposed to protect an important wildlife movement area and will reduce fire risk in an area with frequent fire starts.

Designated camping is proposed along the 237 Road. Camping in this area will be limited to camping in designated campsites only. Selection of designated campsite locations will be determined from site-specific inventory and be incorporated into the layout of proposed thinning treatments. Camping in the designated sites will be allowed within a 50 - 100 foot radius of a marked post.

Associated benefits of designated camping are reduced fire risk and improved watershed, soil, and recreation management. Designated camping will also address public comments and concerns received during public participation for the Flagstaff Lake Mary Ecosystem Assessment.

19. *Trails*

Forest Service system trails are proposed south of Forest Highlands and Kachina Village. Several miles of trails are proposed south of Kachina Village to replace a social trail system in the area. Any newly designated trail access from Kachina Village and Forest Highlands will be determined with the layout and design of a non-motorized trail system for the area.

A long primitive loop trail is proposed for the northern section of Pumphouse Wash and Kelly Canyon. Two trailheads are proposed. One trailhead will be located near the existing A.D.O.T. camp on Highway 89A. The second trailhead will be adjacent to the 237 Road where Pumphouse Wash crosses the 237 Road.

Convert an existing social trail from Forest Highlands into the Griffiths Spring to a Forest Service system trail.

These projects are important steps in reducing the risk of a human caused fire and will also address public comments received during public participation for the

Flagstaff Lake Mary Ecosystem Assessment. Thinning and other activities, which are a part of this project, necessitate the inclusion of these activities. Some trails, for example, will have additional visual and Recreation Opportunity Spectrum (ROS) objectives that will be included in thinning prescriptions and overall project design.

20. *Mexican Pocket Management*
Mexican Pocket will be designated for day use only, with no camping or campfires, to lessen fire risk. In order to continue to provide access to a popular area, a two-mile loop trail is proposed to provide hiking to the edge of Pumphouse canyon and to connect the Oak Creek Vista Overlook with a small trailhead constructed near the A.D.O.T. yard.

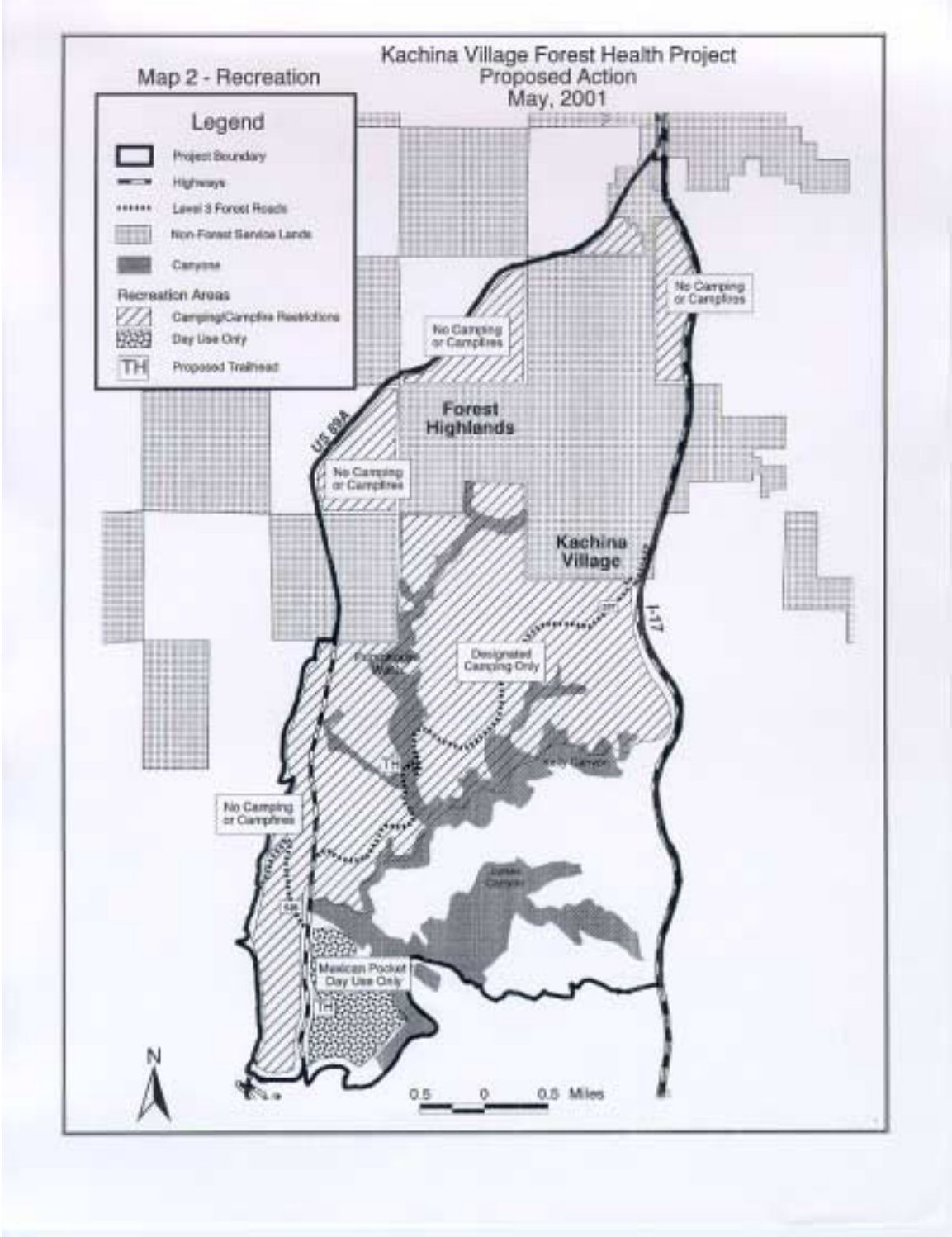
21. *Passenger Car Roads (Level Three Roads)*
The 237 Road and 535 Road will be maintained as Level Three roads, thereby providing approximately seven miles of passenger car roads. The 237 Road will continue to be the primary access road to the Kachina Village Project Area, in addition to important area access for wildfire fighting efforts.

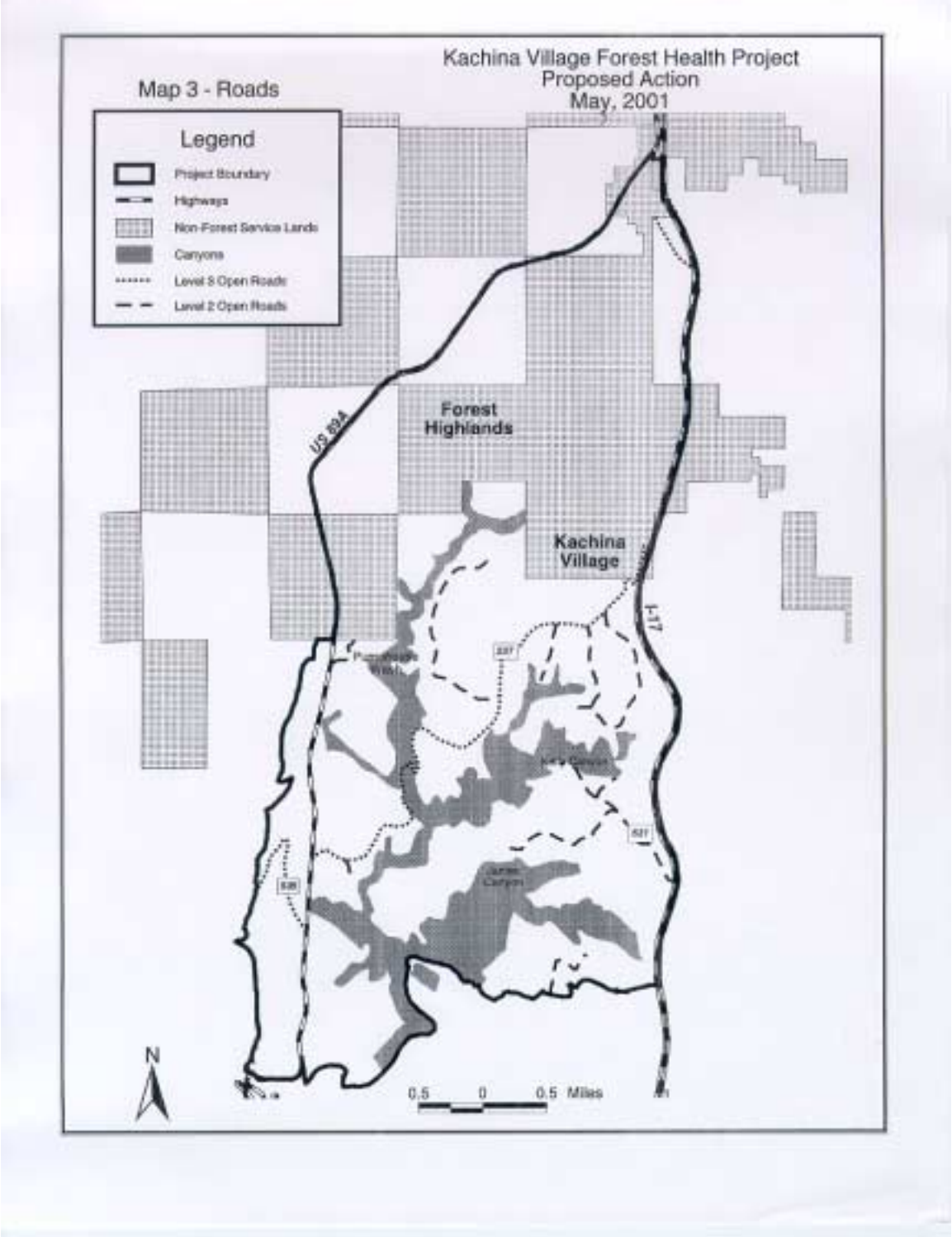
22. *High-Clearance Vehicle Roads (Level Two Roads)*
Approximately eight and one half miles of road will be maintained as Level 2 roads in the project area. The proposed road access plan provides good administrative access for fire fighting and provides for the best arrangement and location of roads to balance wildfire risk (human access) and recreation experience. The road access plan incorporates public comments received during public participation for the Flagstaff Lake Mary Ecosystem Assessment. The road access plan is beneficial to wildlife habitat, noxious weed management, and watershed and soil conditions.

Roads not shown on the open-road system will be converted to trails, obliterated, or gated for administrative use. Primary administrative use is fire access.

Temporary road construction will be required to conduct thinning within the project area. These temporary roads will be obliterated following thinning treatments. Level 2 and Level 3 roads will be utilized for thinning activities as well. Some roads will need to be improved prior to initiation of thinning activities.

23. *Riparian Restoration Project at Kelly Seep (Located Near Kelly Canyon)*
The area around Kelly Seep will be fenced and structures removed to improve riparian habitat conditions.


Kachina Village Forest Health Project
Proposed Action
May, 2001
Map 2 - Recreation
Legend
Project Boundary
Highways
Level 3 Forest Roads
Non-Forest Service Lands
Canyons
Recreation Areas
Camping/Campfire Restrictions
Day Use Only
TH
Proposed Trailhead
No Camping or Campfires
No Camping or Campfires
No Camping or Campfires
Forest Highlands
Kachina Village
US 89A
I-17
Designated Camping Only
No Camping or Campfires
Mexican Pocket Day Use Only
TH
N
0.5 0 0.5 Miles


Kachina Village Forest Health Project
Proposed Action
May, 2001
Map 3 - Roads
Legend
Project Boundary
Highways
Non-Forest Service Lands
Canyons
Level 3 Open Roads
Level 2 Open Roads
Forest Highlands
Kachina Village
I-17
N
0.5 0 0.5 Miles

Purpose and Need (Why):

1. Manage forest fuels and fire risk to reduce the potential for a large, stand replacing fire in the Urban-Wildland Interface and to create forest conditions from which a crown fire would be unlikely to originate under moderate fire weather.
2. Address and correct historical causes of ecosystem degradation to increase overall forest ecosystem resilience to disturbance events, including fire, drought, and insects.
3. Protect habitat for all Threatened, Endangered, and Sensitive species (Mexican spotted owls and Northern goshawks) by reducing the probability of stand-replacing fire in forested habitat and through integrated measures to protect wildlife habitat.
4. Protect black bear, turkey, Abert squirrel, and other wildlife species associated with dense habitat by incorporating special design features into the management plan and to continue to provide habitat for these species in the project area, including important wildlife habitats, such as cover areas and movement corridors.
5. Protect and enhance the quality of the Oak Creek Watershed.
6. Improve and enhance understory productivity, which has been negatively impacted by increased overstory densities.
7. Retain, enhance, and recruit mature or "old yellow" ponderosa pine and Gambel oak, which are declining in longevity.
8. Create the conditions necessary for the reintroduction of fire to the ecosystem.
9. Increase the diversity of age classes within the forest to provide Northern goshawk habitat as described in Amendment #11.
10. Provide access for the proposed treatments
11. Manage access, road networks, and recreation to decrease fire starts, maintain fire suppression access, and to better balance the needs of people with wildlife habitat and watershed and soil conditions.
12. Restore and protect riparian habitats.
13. Protect archeological sites.
14. Research and demonstrate key ecological, economical, and social dimensions of forest health improvement efforts.

When: The proposed actions will be implemented within the next five to ten years. A decision on this project will be made late in 2001 or early 2002.

Decision to be Made: Whether to implement the forest health actions as proposed, as modified to more fully address unresolved conflict, or not at all.