

## **SECTION 4.5**

### **ENVIRONMENTAL PLANNING ELEMENT**

The Environmental Planning Element of the Pinetop-Lakeside/Navajo County Regional Plan is presented in the following sections:

- 4.5.1 Introduction
- 4.5.2 Natural Resources Inventory and Assessment
- 4.5.3 Environmentally Sensitive Areas and Issues
- 4.5.4 Environmental Planning Goals, Objectives, Evaluation Measures, Policies, and Programs
- 4.5.5 Environmental Planning Implementation Program

The introduction will examine the purpose of the Environmental Planning Element. The existing setting will explore the implications that the existing land use pattern and future population growth will have on the development of the community and the preparation of the Land Use Plan Map. Prior to an overview of the Environmental Planning Implementation Program, the Environmental Planning goals, objectives, evaluation measures, policies and programs will be highlighted.

#### **4.5.1 INTRODUCTION**

The Town and County will continue to ensure that environmental quality is maintained and, where possible, enhanced. The purpose of the Environmental Planning Element is to provide guidance in conserving, maintaining, and where necessary, restoring the natural environment of the Study Area.

In order for these natural systems to be conserved, maintained, and where necessary, restored, the other Elements of the General Plan must be coordinated with the Environmental Element. This is especially true of the Land Use Element, which is the culmination of all of the Elements, and serves as a guide to the future physical development of the area. Therefore, the Environmental Element and the Land Use Element are intended to be used together, and land development proposals must conform to the relevant sections of the Environmental Element as well as those sections of the Land Use Element.

#### **4.5.2 NATURAL RESOURCES INVENTORY AND ASSESSMENT**

##### **OVERVIEW**

The Plan Study Area contains approximately 60,000 acres. The area is bounded on the north by SR 60, on the West and South by the White Mountain Apache Reservation, and

on the East by Apache County. The climate of Plan Study Area is moderate with an average annual rainfall of 22 inches and average temperature of 65 degrees.

#### **TOPOGRAPHY AND SLOPE**

The northwestern corner and the County's East Side are part of the Blue Ridge Province. The topography of this area contains intermittent steep slopes and washes which have been produced by headwater tributaries that are intermittent flowing streams. Elevations here range from 6,800 to over 7,000 feet in the southern portion.

The more urbanized portions of the plan study area are bordered on the east by steeper slopes ranging from 5% to 10% on the eastern side of Blue Ridge Mountain. The western border of the plan study area, which is coterminous with White Mountain Apache Reservation boundary, consists of steep slopes making up the Mogollon Rim formation, with slopes ranging from 5% to 20%.

#### **ASSESSMENT**

There are limited steep slopes scattered throughout the study area, primarily within southern Pinetop area and along the eastern edge of Springer Mountain.

#### **GEOLOGIC CHARACTERISTICS**

The Plan Study Area includes a high amount of exposed rock, including Quaternary and Tertiary volcanic. The oldest of the geologic formations is the Coconino Sandstone, which is overlain by Kaibab Limestone. Sedimentary rocks of Upper Cretaceous age composed of sandstones, shales and limestones occur above the Kaibab Limestone. These Upper Cretaceous Sedimentary rocks are generally overlain by Quaternary basalt composed of fractured basalt flows, cinder cones, and beds (Arizona Department of Health Services, 1985).

There are two principal aquifers within the Plan Study Area: The Coconino Sandstone and Kaibab Limestone form one aquifer, which is the deepest source of water in the area. The Upper Cretaceous sedimentary rocks and Quaternary basalt form a second aquifer when they are separated from the Coconino Sandstone aquifer by the low permeability Moenkopi and Chinle Formations or the shale beds in the Upper Cretaceous sedimentary rocks.

#### **ASSESSMENT**

The majority of the groundwater pumped in the Plan Study Area comes from the upper aquifer within the upper basalt strata. Numerous cracks and fissures within the upper basalt layer make some of the groundwater table highly susceptible to rapid infiltration from not only water but also contamination.

## SOIL CONDITIONS

Various properties of soils are important in determining how land can be used safely and economically; slope conditions affect lot size and density of development, and in some instances, may prevent certain types of development due to unavailability of sewer and other public services. Soil erosion is particularly problematic in areas of shallow soils and steep terrain. Knowledge of these conditions is helpful in the preparation of land use plans, zoning, and subdivision standards.

The Soil suitability of the Plan Study Area ranges from slight to severe, based upon the descriptions indicated below, which classifies soil associations according to their relative suitability for select land uses, based upon a variety of site characteristics, such as erosion control, drainage, percolation, etc.

- *Slight*: Soil associations included in this classification can be expected to impose only slight limitations on particular uses. Difficulties or hazards in construction or maintenance due to soil conditions can readily or economically overcome.
- *Moderate*: Soil associations included in this classification can be expected to impose moderate limitations on particular uses. Difficulties or hazards in construction or maintenance due to soil conditions can be corrected only with minor economic expenditure.
- *Severe*: Soil associations included in this classification can be expected to impose several limitations on particular uses. Difficulties or hazards in construction or maintenance due to soil conditions will often be too costly to overcome, as well as impractical.

## ASSESSMENT

Soil suitability is a principal concern in regards to septic system siting. In general, moderate and severe conditions exist within the floodplain and surface drainage areas, limiting the viability of on-site septic systems. (Note: Failing or inadequate septic systems was the driving force behind the inception of the Pinetop-Lakeside Sanitary District.) The Arizona Department of Environmental Quality (ADEQ) is charged with administering the permit conditions and authorizes local governments to enforce these rules through delegation agreements. The Navajo County Development Services Department is the local permitting office, which administers the state requirements.

## HYDROLOGY AND FLOODPLAIN

The Little Colorado River and Walnut Creek are the major and minor basins within the plan study area. The basic drainage pattern for these basins slopes in a northwesterly manner from the southeast. The two identified watershed channels are Billy Creek and Walnut Creek. Walnut Creek incorporates Woodland Lake and Rainbow Lake.

## ASSESSMENT

The major flood prone areas that are currently designated as 100-year flood areas by the Federal Emergency Management Agency (FEMA) lie along Billy Creek and Walnut Creek and incorporate several smaller surface lakes and reservoirs.

## WATER QUALITY AND SUPPLY

Although the expansion of sanitary sewer has greatly decreased the levels of fecal matter leached from area septic systems, the increase in impervious surface resulting from development has accelerated stormwater runoff and higher levels of pollutants into surface waters. This includes sediment nutrients and other pollutant concentrations from parking lots, roof surfaces, paved streets, etc. as well as lawns and golf courses that utilize fertilizers and other chemicals that effect the natural biosystems of major water bodies. Lakes receiving the highest concentrations of contaminants are Woodland, Rainbow and Show Low.

Water Supply: See Section 4.4 Community Facilities and Services.

## ASSESSMENT

In June of 1999 the Arizona Department of Environmental Quality published a study on Rainbow Lake examining its effluent discharge for compliance with Section 303(d) of the Federal Clean Water Act, which requires that states identify specific areas that have significant impact upon surface waters. The study provided technical data illustrating increased nitrates and other pollutants caused by development within the immediate watershed. This study not only demonstrates the necessity for future water quality monitoring by the Agency to prevent future violations of the federal Clean Water Act but the need for mitigation measures to treat runoff discharge and other pollution.

## FOREST RELATED RESOURCES

Forests constitute the largest natural resource within Navajo County. The predominant species within the region is Ponderosa Pine, although Alligator Juniper, Gambel Oak, and Aspen are also present. The Forest coverage is designated on the existing land use map series in the Land Use Section 5.1. The Table 4.5-1, *USFS Forest Coverage* below denotes acreage by ownership according to 1997 data. The majority of the forest ownership is under the jurisdiction of the Apache-Sitgreaves National Forest. County and private control the balance.

**TABLE 4.5-1**  
**USFS FOREST COVERAGE**

	<i>Acre</i> s	<i>% of Jurisdiction</i>
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USFS (Town)	3,298	46%
Private (Town)	3,959	54%
USFS (County)	54,000	81%
Private (County)	4,942	19%

Ranger offices in Lakeside manage National Forest lands within the Plan Study Area. A large portion of the national forest is managed as a multi-use resource in compliance with federally mandated requirements effecting timber production, preservation, general recreation, and other public use. These include the Multiple-use Sustained Yield Act of 1960, the National Environmental Policy Act, adopted in 1970, and the Forest and Range Land Renewal Act. The U.S Forest Service has also conducted an Environmental Impact Statement in conjunction with its Land and Management Plan for the Apache-Sitegraves Forest, which is revised at least once every 10 years. This document covers general resource policies as well as specific strategies for select areas, including wildlife protection, timber management practices, recreation improvements, land acquisition, roads and other facility improvements. It also covers key guidelines that govern the agency position on covering the public land exchange process, such as Recreation facilities included within the national forest are covered in the Open Space/ Recreation Element.

#### **ASSESSMENT**

The regional forest ecosystem, including the Plan Study Area has been substantially altered by the presence of human settlement. The culmination of decades of fire suppression has resulted in overly dense stands of smaller trees and subsequently increased opportunities for disease infestation and wildfire. In response to these issues and to improve forest health, the Blue Ridge Demonstration Project, a five-year pilot project sponsored by Navajo County, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, and the University of Arizona, was initiated in 1998 to study alternative management techniques. The Blue Ridge Project contends that several impacts have resulted since permanent settlement of the region started in 1870, including the following:

- ❑ Increased fuel loads
- ❑ Increased fuel ladders or combinations of combustible materials that promote escalating fire conditions
- ❑ Decreased moisture
- ❑ Decreased understory grasses, forbs and shrubs
- ❑ Decreased water flow to seeps
- ❑ Decreased visual quality
- ❑ Increased risk of insects, disease and wildfire
- ❑ Increased threat of loss to large old growth trees.

The goal of the Blue Ridge Demonstration Project is to monitor and compare the effects of tree restoration techniques to 6,000 acres from a larger 17,000-acre watershed and control site, employing varying degrees of selective cutting and prescribed burning. The results of the project will be reviewed by state and federal agencies and shared with the general public.

Although it is not known to what extent the Blue Ridge Demonstration Project will alter federal management practices for national forest, it underscores the need for a regional approach to forest management on private, federal, and reservation land. Future management guidelines should consider the following key issues:

1. As more residential development and habitation occur within the forested areas traditional management practices, i.e., selective thinning, control burns, should be evaluated further for their effects.
2. Unless the land development process is altered to mitigate such impacts as stormwater runoff or fire danger caused by overstocked private lands, forest health will be threatened.

**WILDLIFE**

The Plan Study Area includes vital habitat for a variety of wildlife, including several species of fish, mammal, waterfowl, and other bird life. The Plan Study Area includes sizeable populations of large game, such as elk and deer.

The Arizona Game and Fish Department is the primary agency with direct responsibility for wildlife management, including game and fish permitting, and enforcement. The agency also is involved public education. Aside from management mission, the Agency supports a variety of public education programs through recreational programs such as the joint management of the Big Springs Environmental Area and the publication of materials to acquaint people with dangers of feeding bears and other wild animals.

**PROTECTION ISSUES:**

The Endangered Species Act establishes federal protection for specific species. In Arizona the Game and Fish Department has responsibility for statewide protection. Within the Plan Study Area there are no known species on the endangered list although the Department lists several animals and plants that deserve special consideration due to their potential for being threatened or harmed.

<i>Common Name</i>	<i>Description</i>	<i>Status</i>
California floater		S
Chiricahua leopard frog	Amp	C,WC,S
Little Colorado spinedace		LT,WC

Northern goshawk	Bird	WC,S
Northern leopard frog	Amp	WC,S
Osprey	Bird	WC
Paper-spined cactus	Plant	SR

Source: Arizona Game and Fish Department -1999

LT- Listed Threatened.

C- Candidate

WC- Wildlife of Special Concern in Arizona.

S- Sensitive as classified by Regional Forester.

S- Salvage Restricted.

#### ISSUES:

- Loss or impact to valuable habitat due to urban development encroachment.
- Water quality due to increased contamination.
- Human wildlife contact.

#### ASSESSMENT:

The Game and Fish Agency has a limited capacity for wildlife protection because it does not control major areas of habitat and does not have jurisdiction to interfere with private owners use of land. However, the Department is able to creatively work with private landowners and other public agencies to preserve habitat. One option in the future is to fund or support conservation easements that would purchase development rights.

#### 4.5.3 ENVIRONMENTALLY SENSITIVE AREAS AND ISSUES

The Environmental Planning Element incorporates a variety of environmentally sensitive areas that have regional significance. Environmentally sensitive areas include public or private lands that incorporate one or more of the following:

- Specific habitat areas that fall under the protection or monitoring of federal or state agencies.
- The identification of endangered, protected, or significant species that fall under the authority of federal or state agencies.
- Other areas identified by the public worthy of some level of conservation or protection. Note: All USFS lands potentially fall under these criteria.

#### EXISTING AREAS AND FEATURES

- Blue Ridge Demonstration Project
- Woodland Park/Big Springs Environmental Area
- Billy Creek

- ❑ Walnut Creek
- ❑ Areas susceptible to groundwater pollution from failing or faulty septic systems or runoff.
- ❑ Other forested areas threatened by poor forest health, fire or loss of habitat.

### **Regulatory Authority and Development Restrictions**

The regulation of environmentally sensitive habitat and species is multi-faceted and includes a variety of federal and state agencies, each with specific regulatory authority. For example: The Arizona Department of Environmental Quality (ADEQ) is the principle agency charged with the enforcement of federal water and air quality standards. The Arizona Department of Game and Fish is responsible for the protection of endangered or threatened species. At the same time the US Forest Service has a major regulatory role in the Plan Study Area due to its responsibility for the protection of sensitive habitat pursuant to the Endangered Species Act (ESA). For example, the reduction of timber harvesting due to the federal court decisions regarding the ESA, as well as recent policies regarding road construction, has altered timber management practices of the USFS.

Potentially any new development within the Plan Study Area could trigger the ESA on either public or private land. Taken to an extreme interpretation, the development potential of private property could be severely curtailed unless the state and local governments are capable of collaborating on pro-active management strategies with the USFS and other federal agencies. The means of implementing this approach is the local adoption of habitat conservation plans (HCPs), which establish specific guidelines for the mitigation of habitat destruction and replacement. HCPs provide a level of certainty and assurance for future development.

At this time there are no specific local Town or County regulations that advance environmental protection of species or habitat, although the Town and County development review processes incorporate certain standards that may be used to protect environmentally sensitive areas. These include the following:

- ❑ Floodplain standards that restrict development along tributaries to assist in protecting critical riparian habitat.
- ❑ Zoning setback, density, and use regulations.
- ❑ Subdivision standards regulating drainage systems and other improvements that potentially may impact the natural environment.
- ❑ Buffers and open space area restrictions for certain Planned or Special Development projects.

#### **4.5.4 ENVIRONMENTAL PLANNING GOALS, OBJECTIVES, EVALUATION MEASURES, POLICIES, AND PROGRAMS**

**GOAL: DEVELOP A SUSTAINABLE GENERAL PLAN, WHICH RECOGNIZES AND MITIGATES DEVELOPMENT IMPACTS ON AIR QUALITY, WATER QUALITY, AND NATURAL RESOURCES.**

##### **OBJECTIVE 1**

Preserve the integrity of Billy Creek, Walnut Creek, and other identified key riparian areas as linear open space.

**EVALUATION MEASURE:** Number of development permit requests within riparian areas requiring environmental assessment.

**POLICY:** Set back development from critical areas as far as practical.

**POLICY:** Work with USFS to ensure public access for trails in a manner consistent with environmental concerns and in conjunction with the White Mountain Trails System.

**PROGRAM: AMEND ZONING ORDINANCE TO INCLUDE AN ENVIRONMENTAL OVERLAY ZONING DISTRICT**

##### **OBJECTIVE 2**

Identify, manage, and protect all ecological communities and wildlife, especially critical habitats and endangered, threatened, and species of special concern identified in official federal, state, or international treaty lists through the protection of critical wildlife habitat areas and corridors.

**EVALUATION MEASURE:** Number of developments requiring environmental assessment.

**POLICY:** Within critical areas, require development applicants to consult with the appropriate agencies and to use recognized sampling techniques to identify endangered, threatened, and species of special concern.

**PROGRAM: AMEND TOWN AND COUNTY DEVELOPMENT STANDARDS TO ACCOMMODATE THE FOLLOWING:**

- (1) The clustering of residential developments, or the implementation of other measures to minimize adverse environmental impacts, shall be required if areas of significant native habitats are involved.
- (2) Consider development fees for future public acquisition of critical habitat areas.
- (3) Accommodation for conservation easements.

- (4) Require dedication of key linkages as part of the Planned Development process.
- (5) Other measures mandated by state and/or federal regulation.

### **OBJECTIVE 3**

To maximum extent possible, maintain the ponderosa pine forest as one of the defining natural features of the Plan Study Area.

**EVALUATION MEASURE:** 10% increase in the amount of forest preserved per 10 acres of development.

**POLICY:** Encourage development to preserve as much of the natural environmental as possible.

**POLICY:** Encourage re-vegetation with indigenous plants

**POLICY:** Encourage road design that is compatible with the topography and landscape that minimizes grading.

**POLICY:** Encourage road design that maximizes environmental and aesthetic considerations consistent with safety needs.

**PROGRAM:** Amend tree protection standards.

### **OBJECTIVE 4**

To protect and conserve surface and groundwater resources

**EVALUATION MEASURE:** Increase in identified surface and groundwater resources under specific protection plan.

**POLICY:** Promote land use development activities in important groundwater recharge areas that are consistent with the water quality objectives of State and Federal Agencies.

**PROGRAM:** The Town and County development review process shall incorporate water protection strategies and plans of DEQ, DWR, and other governmental entities.

### **OBJECTIVE 5**

To preserve the natural aesthetic quality in developed areas through the planting, maintenance, and preservation of native plantings and other appropriate ornamental plantings and buffer strips in street rights-of-way and in other public and private open spaces. To manage the urban plantings efficiently, maximizing the use of limited resources to include fire safety.

**EVALUATION MEASURE:** The amount of linear frontage property and other areas with native vegetation visible from rights-of-way.

**POLICY:** Promote the conservation of native vegetation removed during land clearing and utilize this resource for transplanting and re-vegetation.

**POLICY:** The appearance of selected arterial roads shall be improved with the planting of low-maintenance, native or other appropriate ornamental plants and trees.

**POLICY:** The Town/County shall incorporate native vegetation into the landscaping of all government-owned property and replace with native or other appropriate ornamental species.

**POLICY:** During the development review process, encourage the private sector to preserve natural vegetation, to relocate native vegetation that cannot be preserved, and remove invasive and nuisance plants.

**PROGRAM:** Pursue an interdepartmental/interagency approach to the development of management plans and/or guidelines for native areas with parks in order to protect, maintain, and restore, when necessary, native habitats.

**PROGRAM:** Amend landscaping regulations to require increased vegetation for screening and shading of parking areas.

**PROGRAM:** Increase the environmental awareness of all residents in the Study Area through the production of educational materials for developers, homeowners, and other interested citizens concerning proper maintenance, management, restoration, and development in natural areas (for example, pamphlets about habitat creation, endangered species, management of development ponds, etc.).

#### **4.5.5 ENVIRONMENTAL PLANNING IMPLEMENTATION PROGRAM**

In order to minimize the conflict between development and the ecosystem effective strategies must be undertaken that address the urban-wildland interface.

#### **PRINCIPLES FOR EVALUATING DEVELOPMENT PROPOSALS IN NATIVE HABITATS**

The following guidelines pertain to the native habitats found in the Study Area and will be applied by the Town and County staffs to assist in the evaluation of land development proposals. Unless stated otherwise, any findings of fact required by these Guidelines shall be made by Town and/or County staff.

#### **SPECIFIC HABITAT: PONDEROSA PINE FOREST**

##### **ENVIRONMENTAL VALUES AND FUNCTIONS:**

- Ponderosa Pines are the predominant native habitat in the Study Area and are the major habitat for many species of wildlife. Like many other native habitats, Ponderosa Pine vegetation and soils remove pollutants from water and air.

## **MANAGEMENT GUIDELINES**

- Special emphasis should be placed on meeting open space requirements by conserving areas of Ponderosa Pines.
- Canopy and understory vegetation shall be maintained in conservation areas and in wetland buffer preservation areas. A resource management plan for these conservation and preservation areas, based on best available technology, shall be submitted for review and approval by the Town/County prior to or concurrent with the preliminary plan or site and development plan review process.
- Recognize fire as an important management tool in the maintenance of this habitat.

## **SPECIFIC HABITAT: WETLANDS**

### ENVIRONMENTAL VALUES AND FUNCTIONS:

- Water filtration – Wetlands can improve water quality by filtering overland flow and assimilating nutrients contained in runoff.
- Natural floodwater storage
- Critical habitat – Wetlands provide essential food and shelter for numerous species of animals, provide breeding and spawning areas for wildlife and fishes, and provide critical habitat for numerous plant and animal species with special protection status.
- Role in the hydrologic cycle – Wetlands contribute to the hydrologic cycle through evaporation and evapotranspiration.
- Recharge – Some wetlands recharge the surficial aquifer
- Erosion control – Wetlands can stabilize land surfaces and control erosion.
- Recreation – Wetlands provide opportunities for recreation in the form of fishing, bird watching, hunting, etc.

### MANAGEMENT GUIDELINES

- Wetlands shall be preserved
- Vegetation shall be protected in areas subject to seasonal water level fluctuations.
- The natural flow of water within and through contiguous wetlands shall not be impeded. In areas where roadways must cross contiguous wetlands, structures of appropriate dimensions must be utilized so that natural flow patterns will be maintained.
- Stormwater runoff from impervious surfaces must be pretreated prior to its discharge into natural wetlands. Pretreatment may be in the form of underdrains, grassed swales, lake overflow, or other approved methods.