

June 28, 1991

**Verde River Visual Assessment:**

**Verde River Corridor Study,**

**Tapco to Beasley Flat**

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**Verde River Corridor Study**  
**Introduction**



## **INTRODUCTION**

From the air, the Verde River appears to be a ribbon of green weaving through the lightly colored striated sedimentary rocks of the Central Arizona Highlands. From its headwaters in the Chino Valley to its confluence with the Salt River, approximately 30 miles east of Phoenix, the Verde flows for 190 miles (see Figure 1). It is one of the last perennial, free-flowing water courses in Arizona. In a state known for its scenic wonders, the Verde Valley stands out for its beauty. The character of the surrounding landscape and river corridor is complex, ranging from mountainous terrain with pine forests to lowland desert scrub. Along the river, the existing riparian vegetation includes extensive stands of cottonwood-willow gallery forest. Within this dramatic valley, the river forms a linear verdant oasis through an arid region.

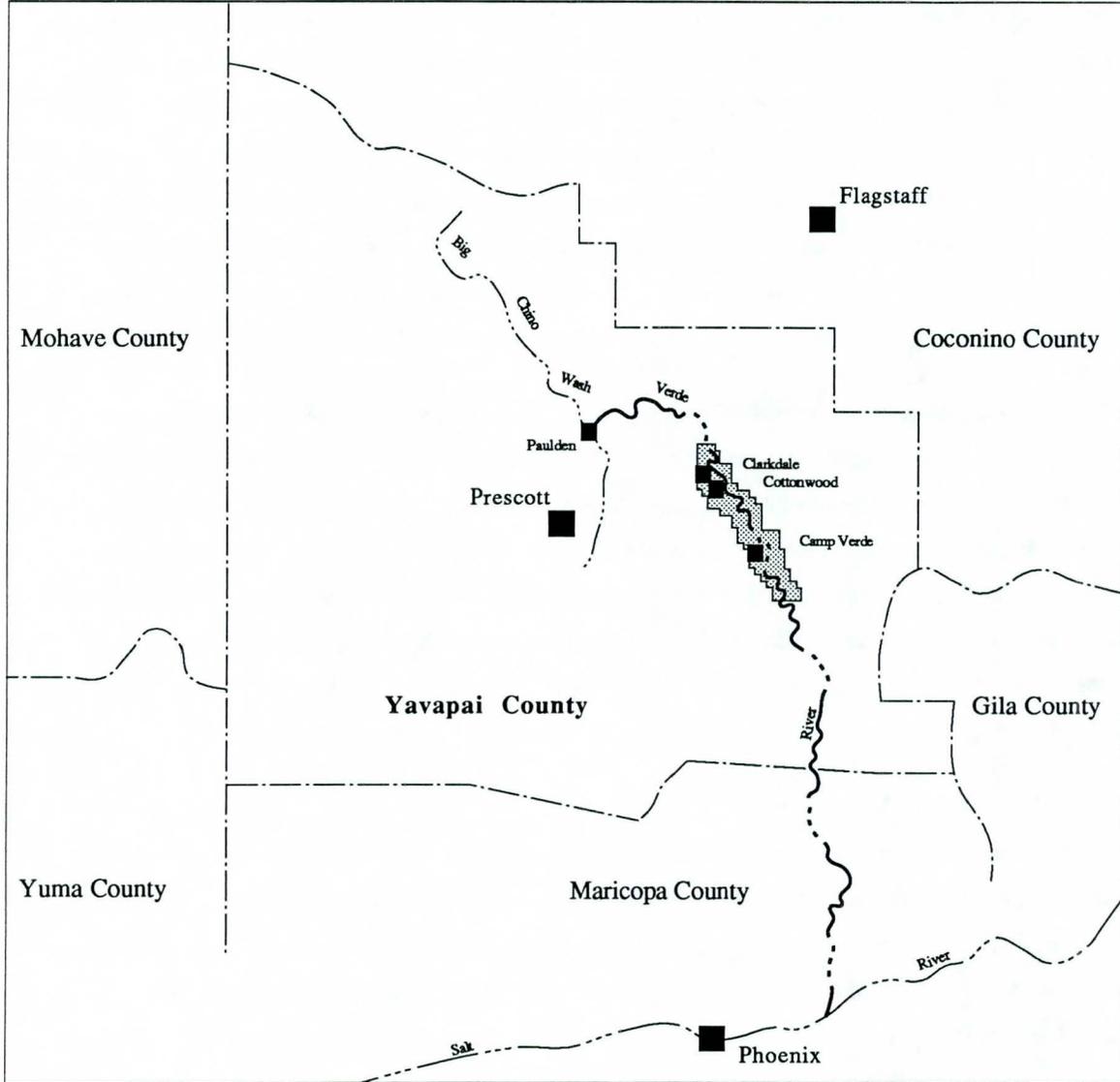
A 40.5 mile segment of the river south of Beasley Flat has been designated by the federal government as wild and scenic under the Wild and Scenic Rivers Act. Scenic designation begins just below Beasley Flat and continues 14.5 miles south to the Mazatzal Wilderness Area boundary. Wild designation continues for the remaining distance south to the confluence of Red Creek. In addition to the existing wild and scenic designations south of the study area, a new proposal by the Arizona Rivers Coalition recommends 33 miles of the river to be classified as "recreational" beginning at the national forest boundary near Paulden and ending just north of Clarkdale (Arizona State Parks, 1991). The river's ability to qualify for these wild and scenic river designations supports the need to manage this rare and scenic natural resource.

### **Verde River Corridor Project**

Citizens have become concerned about the changing character of the Verde Valley. People are being attracted in increasing numbers to the natural wonders of the area. They seek out its recreational amenities as tourists or retirees. Concern about change, especially the degradation of the natural beauty of the valley, resulted in the initiation of the Verde River Corridor Project (VRCP). The VRCP began in 1989 as a locally directed effort to address issues of deterioration of environmental quality while preserving property rights and economic activity that is dependent upon the river. The objectives of the VRCP are to:

- Identify and recognize all uses of the Verde River corridor,
- Encourage protection of the Verde River and its natural and cultural resources, and
- Promote coordinated decision-making for the continued enjoyment and use of the Verde River by future generations (Arizona State Parks 1991, p.3).

**Figure 1 - Verde River Corridor Study Location**



-  Verde River Corridor Study Area
-  Verde River
-  Salt River

Not to scale

10 Miles = 

 NORTH

The project has been guided by a steering committee composed of representatives from local organizations, other interested groups, and local citizens. The Arizona State Parks Board and the Arizona Department of Commerce provided assistance by coordinating activities. A technical advisory committee of specialists from various agencies and organizations was formed to provide additional assistance to the VRCP. Five subcommittees of the VRCP were formed to address specific issues of private property rights, commercial use/economics, land conservation, recreation, and water. A series of open forums were held regularly to encourage broad public participation. This process has culminated in a number of recommendations that are intended to guide future multiple-use of the river corridor.

The specific area encompassed by the VRCP follows the river for approximately 46 linear miles from Tapco substation (above Clarkdale) to Beasley Flat (below Camp Verde). The primary focus is the river corridor. Associated lands that influence or affect the corridor are also addressed. Along this segment of the river are the towns of Clarkdale, Cottonwood, and Camp Verde; Tuzigoot National Monument, Dead Horse Ranch State Park, and Pecks Lake; as well as several small or unincorporated developments.

### **Visual Assessment**

This visual assessment has been conducted as a special study in support of the VRCP. **The primary purpose of this study is to identify and evaluate the perceived scenic quality of the river corridor.**

In addition to the benefits of recreation, fish and wildlife habitat, and various economic activities, the Verde River provides a significant scenic resource. The visual assessment process, as outlined in this report, has resulted in an evaluation of the relative scenic quality within a larger context. The report also identifies areas that have special significance to Verde Valley residents. This information can be incorporated with the VRCP recommendations so that visual and aesthetic considerations can be integrated into future management decisions.

The visual assessment process involved participants from the Verde Valley as well as researchers from Arizona State University (ASU). It was determined that three methods of visual assessment would be used to allow different levels of public involvement and address varied perspectives. These three methods and the levels of involvement are:

- The **expert evaluation** method, which utilized trained observers without the need for public interaction (no public involvement).
- The **public valuation** method, which required trained observers of the river's corridor to select representative landscapes. Public review was then used to place scenic values on these landscapes (about 50% public involvement).
- The **public nomination** method, which relied on public selection for both the landscapes and reasons for the scenic preference (100% public involvement).

Visual assessment, because it involves individual perceptions of aesthetics, is generally considered to be subjective. It is said that beauty is in the eye of the beholder. However, this study illustrates that, at least in the case of the Verde Valley, people generally agree on what they behold to be most beautiful and what they consider most unattractive. In this study, different groups of participants and several methods were used to reduce the potential for subjectivity and to identify those areas that are clearly most preferred to behold. The expert evaluation process was conducted by faculty and students of environmental planning and landscape architecture from ASU. The public valuation process was conducted by the same group from ASU but incorporated public involvement, in which Verde Valley residents indicated scenic quality preferences in a series of structured workshops. The public nomination process was coordinated by ASU and Arizona State Parks. Verde Valley residents participated by nominating areas of scenic quality with little formal direction. Each of these methods and the specific roles of participants is described in more detail later in this report.

The area included in the visual assessment is the same as that of VRCP, from Tapco to Beasley Flat along the river corridor. The assessment was conducted from the perspective of river corridor users, meaning that the primary orientation points or viewpoints were from within the corridor itself. This narrows the scope of this assessment slightly from the broader VRCP. The VRCP considered adjacent lands because they are linked with other resource issues that have stronger social and economic implications. Background views, however, are included as part of the visual assessment. As a result, the larger corridor is considered but only as it relates visually from the river itself.

**Verde River Corridor Study**  
**Natural and Cultural Context**



## **NATURAL AND CULTURAL CONTEXT**

The current status and character of the Verde Valley is linked to the natural and cultural development of its past. The scenic quality of this area is a manifestation of processes of landscape formation and cultural modification. It is this dynamism that makes the process of visual assessment necessary.

### **Natural History**

The geologic history of the Verde Valley helps to explain the physical characteristics of the contemporary landscape (Chronic, 1983; Ramney, 1989; Averitt et al. 1990). The Verde Valley is situated within the Central Highlands province, between the Colorado Plateau to the north and the Basin and Range Province to the south. This area is commonly referred to as the Transition Province as it provides a geologic transition from the montane environment to the desert. This province is characterized by mountain ranges that tend to be higher in elevation and closely grouped with narrow fault-bound valleys filled with less sediment materials than the desert basins (Chronic, 1983). The mountainous escarpment known as the Mogollon Rim lies to the east of the valley, although it is not readily visible from the river. The most predominant feature visible from the river is the gently sloping flat-topped Black Hills mountain range to the south and west of the valley.

The Verde Valley that is evident today was shaped by a series of dramatic geologic events, namely the action of the great inland seas, eras of intense faulting and uplift, and eventually the eroding and depositional effects from a series of lakes that resulted in the Verde Formation.

The inland seas which came and went during the Paleozoic period (500 million years ago) laid in the sediments which make up the formations including the reddish Martin and Redwall limestone and the pale reddish-brown sandstone of the Supai Formation. Evidence of marine life can be found in these formations which contain deposits washed down from what is now known as Utah and Wyoming.

Over time the valley also went through a series of intense periods of uplift and faulting. At one point the uplift in the valley created a drainage out of the valley flowing north onto the plateau region. This was 75 to 50 million years ago when the continental plates were being compressed causing the mountain building activity which eventually resulted in the directional shift of the mountains in this area to the northwest-southeast orientation seen today. This period of uplift lasted well into early Cenozoic time (about 60 million years ago) as the valley continued to experience further warping and faulting. Eventually, around 38 million years ago a trough was formed as the inland seas were subsiding which cut through the Permian cliff-forming rocks of the Kaibab, Toroweap, and Coconino formations. This trough was later deepened by uplift south of the Verde Fault near Jerome which today is the southwest edge of the Verde Valley.

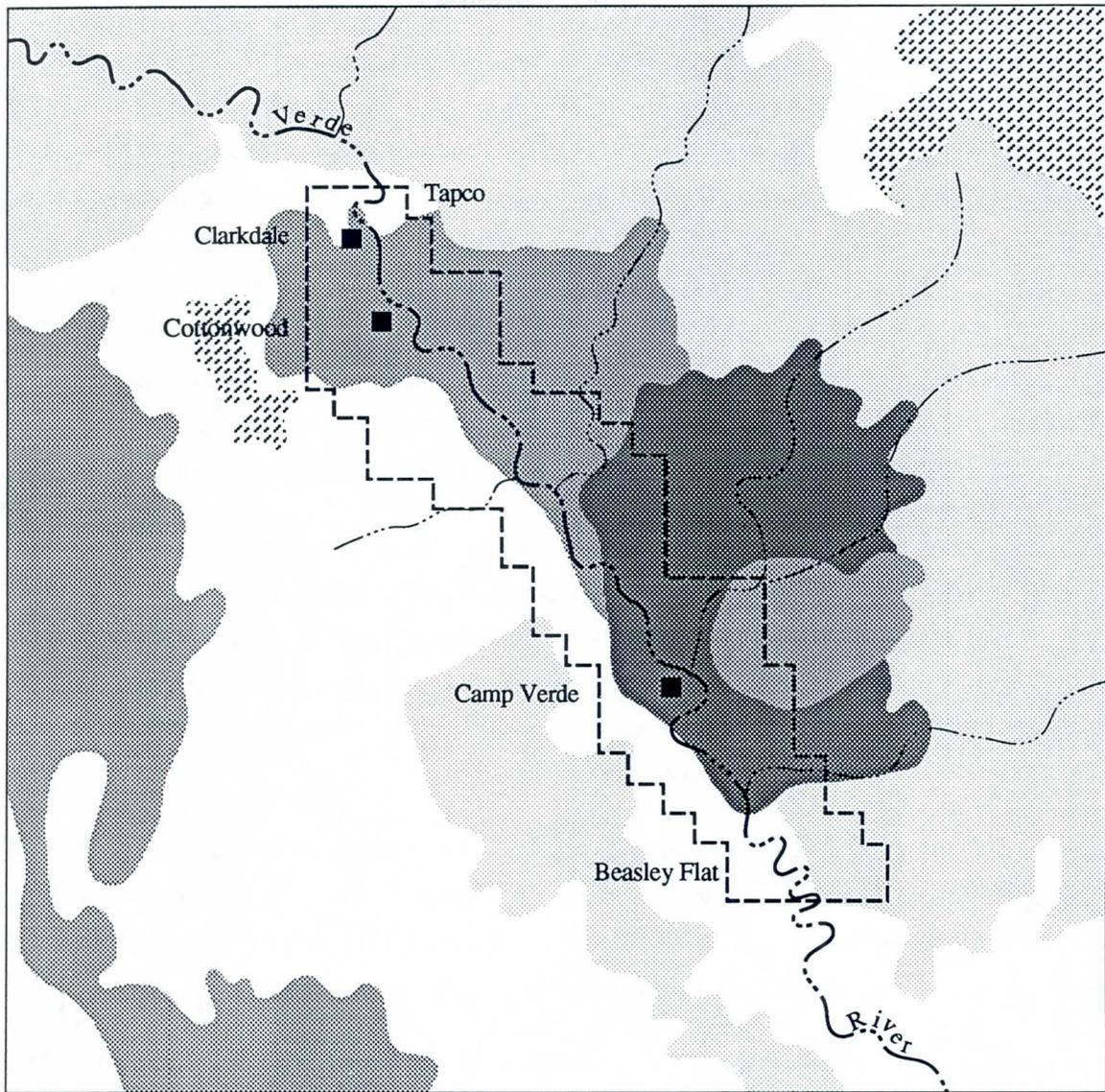
It was also during the late Cenozoic that the Black Hills were elevated and the reddish sandstone and limestone formations were capped by the black lava. The stark contrast of the lava against the red formations remains a dominant feature of the landscape when viewing the valley from the river.

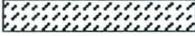
In more recent geologic times, about 6 million years ago, during the Pleistocene and Pliocene the valley was filled with a series of lakes caused by the impounding of the drainage by lava flows. This damming of the Verde River took place just south of Camp Verde and formed a lake 15 miles wide and 35 miles long. This lake drained the limestone surface of the Coconino Plateau which had a high concentration of calcium carbonate. The lake eventually eroded the lava dam and limestone deposits became the present ground surface. Calcium carbonate that concentrated on the bottom of the lake is visible today as the chalky white band that runs throughout the valley intersecting the sandstone and limestone deposits (Snyder, 1985). It is readily visible from the river and elsewhere throughout the valley. In fact it is this white band which is the hallmark and major identifying factor of the most common formation in the valley, the Verde Formation.

The Verde Valley is not only a transition zone geologically but supports a diversity of plant species that comprise the transition from montane to desert plant communities. According to the classification system used by Brown and Lowe (1980), the major plant communities throughout the Verde Valley and along the Verde River are Plains and Desert Grasslands, Montane Conifer Forest, Chaparral-Interior Chaparral, Sonoran Desert Scrub-Arizona Upland Division, Juniper-Pinyon Woodland, Deciduous Riparian Woodland, and the Emergent Marshlands (see Figure 2). The Montane Conifer Forest and Juniper-Pinyon Woodland are found at the higher elevations or ridge tops in contrast to the Deciduous Riparian Woodland which are found adjacent to the river and in the flood plain. The Emergent Marshlands are also found near the river or in the flood plain. However, the Plains and Desert Grasslands and Chaparral - Interior Chaparral are scattered throughout the upland areas with the desert grasslands most notable near Camp Verde and Beasley Flat.

The upland sites in the Verde Valley along either bank of the river are steeply sloping hillsides with exposed light colored, layered soils which are sparsely vegetated. This sparse vegetation consists mainly of the conifer woodland communities represented by One-seed juniper (*Juniperus monosperma*) and the Colorado pinyon (*Pinus edulis*) which dot the ridge tops and steeper slopes. As the slopes level off approaching the river valley the grasslands become more apparent.

**Figure 2 - Natural Vegetative Communities** (Brown and Lowe, 1980)



-  Montane Conifer Forest
-  Juniper-Pinyon Woodland
-  Sonoran Desert Scrub- Arizona Upland Subdivision
-  Plains and Desert Grassland
-  Chaparral- Interior Chaparral
-  Deciduous Riparian Woodland / Emergent Marshlands
-  Verde River Corridor Study Boundary

10 Miles = 



The sparse vegetation of the plains grasslands from Tapco to Camp Verde is a mixture of perennial and annual grasses, shrubs, and shrub-like succulents. Dominant grasses characteristic of this community include native perennials such as Tobosa grass (*Hilaria mutica*) and Black grama (*Bouteloua eriopoda*) and introduced annuals such as Red brome (*Bromus rubens*). In the areas from Camp Verde south to Beasley Flat, the vegetation makes a noticeable change to that of semi-desert grasslands with some interior chaparral communities. Even though very few large trees are evident in this area, a large bosque of Velvet mesquites (*Prosopis velutina*) is notable on the east side of the river near Beasley Flat (Brock 1987a, 1987b). Other trees and shrubs which are representative of the semi-desert plant community are: Scrub mesquite (*Prosopis* spp.), One-seed juniper (*Juniperus monosperma*), Lotebush (*Zizphus obtusifolia*), Mormon or Mexican tea (*Ephedra trifurca*), Mimosa (*Mimosa biuncifera*, *M. dysocarpa*), Catclaw acacia (*Acacia greggii*), Desert hackberry (*Celtis pallida*), Canotia (*Canotia holocantha*), White thorn acacia (*Acacia constricta*), and Yuccas (*Yucca elata*) (Brock, 1987a, 1987b; Brown, 1980; Averitt et al. 1990).

All of these plants can be classified as xeroriparian, that is, plants which frequent lowland areas in arid landscapes (Brock, 1987a). Although very few mature Fremont cottonwoods are found in the Beasley Flat area, a dense grove of young trees are found on the river bend, known as the "nursery bar" (Brock, 1987a, 1987b). Even though trees such as cottonwoods and willows are scarce, the herbaceous cover is the most dense in the Beasley Flat area with annual grasses such as Tobosa grass (*Hilaria mutica*) and Black grama (*Bouteloua eriopoda*) being the most obvious species.

Along the river edge and in the flood plain margin from Tapco to Bridgeport, the dominant plant community is that of the deciduous riparian woodland. Characterized by an over-story of dense Fremont cottonwoods (*Populus fremontii*) and Goodding willows (*Salix gooddingii*) these groves are referred to as winter deciduous and are so dense that they form a canopy or gallery forest (Lowe, 1985).

This gallery forest is only a remnant of what it once was and therefore is under protection status. It is the foundation for a complex ecosystem which is considered very rare in the Southwest and for which Dead Horse Ranch State Park was created. Other tree species that thrive in this riparian zone are Velvet ash (*Fraxinus velutina*), Arizona walnut (*Juglans major*), Velvet mesquite (*Prosopis velutina*), Salt cedar (*Tamarix pentandra*), and Desert willow (*Chilopsis linearis*). Salt cedar is not native yet has become a persistent species in the area. Tree of heaven (*Ailanthus altissima*) is another non-native which has become quite dense, especially in the area west of Dead Horse Ranch State Park. Both Salt cedar and Tree of heaven thrive in areas of disturbance.

The shrubs most common in the riparian and flood plain areas include Seep willow (*Baccharis salicifolia*) and Indigo bush (*Amphora fruticosa*). Seep willow seems to be the predominant shrub in the stream channel and overflow channels since they will bend to withstand moderate flooding and re-emerge as the

flood waters subside (Averitt et al. 1991). In 1980, following the occurrence of rather heavy flooding, several plant species were introduced to bolster stream bank stabilization. They included several non-native grasses which are still evident along the river, such as, Blue panic grass (*Panicum antidotales*), Bermuda grass (*Cynodon dactylon*), and Giant redgrass (*Arundo donax*).

The water dependent plant communities found at the river edge and in areas such as Tavasci Marsh, near Clarkdale, demonstrate emergent marshland vegetation. Plant species including reed-like varieties, such as Cattails (*Typha*) and Bulrushes (*Scirpus*), are common. Introduced vegetation, such as Bermuda grass (*Cynodon dactylon*), Sweet clover (*Melilotus*), and Cocklebur (*Xanthium saccharatum*), can also be found.

The plant communities just described, taken as a whole, represent a thriving ecological entity. This entity is a complex of plants and animals which are obligated to live in this ecological niche. The riparian woodland, for instance, is essential to the survival of 60% of the species that inhabit or migrate through the area. Due to the combination of surface water presence, woody plant species, high soil moisture, and diversity of habitat features, the environment of the Verde Valley supports diverse and productive wildlife populations (Brinson et al. 1981; U.S. Fish and Wildlife, 1990).

The wildlife range from terrestrial to aquatic, but it is the raptors and waterbirds that are some of the most obvious and outstanding inhabitants of the landscape from the perspective of visual assessment. Bald and Golden eagles can be found nesting in cottonwood snags and fishing in the river. Although most of the eagle population may only winter in the Verde Valley, some individuals have become year-round residents as a result of a reliable food source. Great Blue herons are also frequently seen along the river and in the areas of Tavasci Marsh and Pecks Lake. This migratory fish hunter nests in the cottonwood trees where large groups of herons live in rookery groupings to reproduce and raise their young (Slingluff, 1990). In addition, several species of song-birds are riparian obligate and must spend at least part of their life history in the cottonwood-willow forest for reproductive success. In fact this cottonwood-willow habitat is home to more riparian obligate bird species than any other type of plant community in North America (Arizona State Parks, 1989).

Several threatened and endangered species call the Verde Valley home as well. The threatened Spikedace minnow (*Meda fulgida*) is an important indicator species for the health of the river ecosystem and is under federal protection.

Because of the arid nature of the Verde Valley the river has drawn not only wildlife, but humans as well, to the river to build communities. In fact, wetlands have cultural as well as geological and biological significance. The natural environment has done much to shape the physical and cultural landscape of the Verde Valley. Both aesthetic and economic amenities are derived in some way from the natural resources of the area. Nature has drawn settlers to the region in the past and will continue to do so in the future.

## **Historic Settlement and Use of the River Corridor**

There are four phases of human settlement of the Verde Valley: Native American, U.S. military, mining and farming, and recreation and retirement. The earliest known human presence in the Verde Valley is thought to have been about 10,000 years ago. Evidence of prehistoric canal systems, constructed by these early inhabitants, demonstrates direct reliance on resources of the river to support their society (Pilles, 1981; Trimble, 1981). From about A.D. 1000, native populations stabilized, so density and family size increased. Evidence of both Hohokam and Anasazi settlements in the valley exists and anthropologists speculate that significant trade occurred between these groups. The Hohokam Phase (A.D. 1130-1300) is distinguished by increased use of good farmland in flood plains and near water sources such as the Verde River. The earliest portions of Tuzigoot and Montezuma Castle were built during this time. Greater concentration of populations occurred during the Tuzigoot Phase (A.D. 1300-1400) as well as the widespread construction of great pueblos. For reasons yet undetermined, the Verde Valley seems to have been abandoned about A.D. 1425. Several theories exist for the mysterious disappearance, including drought, warfare, and disease. Some archaeologists surmise that the Yavapai, encountered in the Verde Valley by the Spanish explorers in 1583, may have been descendents of the earlier inhabitants. However, most believe they migrated from the Colorado River area. It is clear that the Verde Valley has been recognized as an area of considerable resource value by inhabitants for many thousands of years.

Several groups of Spanish conquistadors visited the Verde Valley in the late sixteenth and early seventeenth centuries, but not until 1829 did the next group of Euro-Americans return. Only when Prescott was established as the territorial capital of Arizona did the Verde receive greater recognition. Scattered settlement occurred and temporary outposts were built until Camp Lincoln was established in the 1860s. It was later named Camp Verde (Munson, 1981). With bolstered security as a result of the presence of the U.S. Army at Camp Verde, settlement of the Verde Valley accelerated at a steady rate. The mining activities of the late nineteenth century fueled the process of migration to the Verde Valley with most development focused around Jerome (Peart, 1989). In 1912, Clarkdale was founded as the company town for the United Verde Mine Company.

Meanwhile, farming of alluvial soils in the Cottonwood area served as the nucleus for more concentrated settlement to occur in that area. Cottonwood, Clarkdale, and Camp Verde have continued to develop from these beginnings. These mining and farming communities were relatively compact urban settlements.

In this century, mining has had the most dramatic influence on shaping the character of the contemporary landscape of the Verde Valley. In addition to the urban development necessary to support the population migrating to the valley for employment, the physical manipulation of the land for the purpose of extracting ore and processing it has resulted in alterations of massive scale. Mining excavations are very visible,

primarily in the Jerome area, and serve as a reminder of the historical roots of the town. Near Clarkdale, residual wastes from the smelting operations are visible today. The mountainous dome of black slag adjacent to the river and the copper colored tailings pond near Tuzigoot dominate the landscape. These modifications demonstrate clearly the ability of humans to transform the natural landscape. Both of these features have remained largely unchanged since mining and smelting operations ceased in 1952.

Since the initial U.S. settlement, the population has grown gradually. The newer development has increasingly focused on the use of the river corridor for recreation and other more intensive uses. In contrast with the mining and farming era, the new settlement pattern is scattered across the landscape. Much of the river frontage is now lined with low density residential development. Although many houses cannot be seen from within the river corridor, human presence is noticeable through secondary impacts in the form of bank stabilization, trail systems, and agriculture. Recreational impacts are also becoming more evident in numerous locations along the river. Most noticeable are denuded areas resulting from trampling, off-road vehicles, fire pits, and trash. Other intensive uses or significant modifications such as sand and gravel operations (both active and abandoned) and water- diversion structures have dramatically changed the character of the river corridor in several places.

The demands placed on the river corridor are now being formally recognized by residents and visitors of the Verde Valley alike. Much of what is attractive, distinctive and important to these people is gradually disappearing because of increased pressures (Arizona State Parks, 1991; Averitt et al. 1991). As a result, both the ecological integrity and scenic quality has been degraded. Future unchecked use of the river corridor will likely result in loss of the very attributes that are most highly valued.

### **Importance of the Verde Valley Within Arizona**

Within the state of Arizona, the Verde River is widely recognized as one of the most important and vital perennial river corridors. Its scenic quality, wildlife values, recreational opportunities, and economic potential are significant beyond the immediate region. Federal designation of a 40.5 mile stretch south of Camp Verde as wild and scenic upholds the claim of the river to ecoregional importance. The Verde was included in the National Rivers Inventory, a U.S. Department of Interior study which identified the nation's most important rivers (Arizona State Parks, 1989). Additionally, American Rivers Coalition has put the Verde River in its list of the top 15 most endangered rivers in the nation (Arizona Rivers Coalition, 1991). With this in mind, the Arizona Rivers Coalition, a local chapter of the national organization, has proposed that the upper Verde from the headwaters at Sullivan Lake to Tapco receive federal wild and scenic status.

Although the river is considered to be ecologically viable, further degradation of the habitat, careless intervention, or development in and around the river will result in irreversible damage to the river's ecosystem. Therefore, the U.S. Fish and Wildlife Service recommends that the Verde River from its

headwaters through the area designated wild and scenic below Beasley Flat be considered a Category I resource; that is, it should be considered a unique and irreplaceable resource that cannot withstand any further loss of habitat.

Consideration on a national level points to the ecoregional significance of the river and supports its broader recognition within the state and the nation as a special place. Due to the taming of most of the other perennial rivers in the state (i.e., Salt, Gila, and Aqua Fria Rivers) for human uses, the free-flowing Verde is one of only a few which retain a largely natural character.

**Verde River Corridor Study**  
**Visual Assessment Process**



CLASSIC CREST

## VISUAL ASSESSMENT PROCESS

An assessment of the scenic or visual quality of a landscape is widely considered to be a useful element of the planning process. The public often demands that visual resources be considered in planning and management decision making. Visual resources are now even recognized for their economic value. There has been much discussion and research over the past 20 years about what people perceive to be beautiful. Federal agencies, such as the U.S. Forest Service (USFS) and the U.S. Bureau of Land Management (BLM), use visual resource assessment techniques in planning and consider the results in decision-making.

Other government agencies, university researchers, and private companies are engaged frequently in conducting visual assessments. (See, for example, Iverson's 1990 scenic resource inventory of nearby Sedona.) Although there are numerous methods and many variations for performing visual assessments, the approaches used for this study sought to incorporate standard techniques while emphasizing the perceptions of the area by the people who live there.

According to Zube et al. (1982) there are four primary paradigms of visual assessment. They are:

- The **expert paradigm**, which involves evaluation of visual quality by a trained expert incorporating knowledge from design, ecology, or resource management.
- The **psychophysical paradigm**, which focuses on a population's preference for specific landscape qualities based primarily on physical characteristics in the landscape.
- The **cognitive paradigm**, which emphasizes human meaning associated with landscape properties based on past experience, future expectation, and/or socio-cultural conditioning of the observer.
- The **experiential paradigm**, which considers landscape values based on interaction of people with the landscape.

Each of these paradigms has merit when performing visual assessments. Visual perception is, however, a continuum without boundaries, and these paradigms or classifications are made for the sake of theory only. As a result, visual assessment research frequently spans more than one of these paradigms. The visual assessment performed for this study utilizes several methods to begin to address different ways of perceiving landscape quality. The primary purpose was not to compare methods to determine if one is more effective than another, but rather to use several methods in complementary analysis techniques.

The three primary methods used in this visual assessment were expert evaluation, public valuation, and public nomination. Procedures for this study were adaptations of well-established visual assessment techniques. Resource maps of slope, vegetation, hydrology, transportation, land use, land ownership, disturbances, and regional watershed delineation were prepared for the river corridor so that the research team could better understand the natural and social processes of the Verde Valley. Certain limitations, however, existed because of budget and time constraints. By using the expert evaluation, public valuation, and public nomination methods, it was possible within the scope of this study to address the central notions of the expert, psychophysical, and experiential paradigms.

Cognitive issues are only dealt with peripherally in this study. A related ASU Master of Environmental Planning thesis by William Whitmore (forthcoming) is focusing more directly on how perceptions vary according to characteristics of the respondent. Respondents from the Phoenix metropolitan region will be considered in addition to those who participated in this study to provide greater sample diversity for future research. The hypothesis that Verde Valley residents perceived this river corridor differently than metropolitan Phoenix residents is being tested (Whitmore, forthcoming). Other respondent characteristics are being isolated and examined as well.

**Verde River Corridor Study  
Expert Evaluation**



## **EXPERT EVALUATION**

The first method used in this visual assessment of the Verde River corridor reflects Zube et al.'s expert paradigm (1982), in which skilled observers evaluate a landscape on the basis of their education and training. According to Zube et al., the human model for the expert paradigm is the "highly-skilled trained observer" who judges landscape properties on the basis of the "principles of art, design, ecology, and resource management" and whose observations result in a "statement of landscape quality" (1982, p. 9). As described below, a team of researchers from ASU conducted an expert evaluation adapted from the method used by BLM. This method by definition yields results which fit into Zube et al.'s expert paradigm. The results of the ASU team's evaluation are a statement of the landscape quality of the Verde River corridor as seen by these researchers, and are the first in a series of evaluation results that, taken together, define the visual qualities of the corridor.

The expert method, as applied in this study, was adapted from the method used by BLM resource managers for assessing the scenic quality of lands under their jurisdiction. It is described in *Visual Resource Inventory*, a 1986 BLM handbook as a systematic process that is used to manage the visual resource of public lands. Both the BLM method and a similar method used by the USFS were developed by R. Burton Litton (1968), a University of California - Berkeley professor of landscape architecture. They are widely used whenever an expert evaluation is called for in visual assessment.

Some criticism has been directed at the BLM method, claiming it is too mechanical and does not allow for the aesthetic of a trained eye to make qualitative judgements (Laurie 1975). However, many feel that the systematic aspects of this approach makes it compatible with resource management objectives (Arthur et al. 1977). Because it is widely used and well documented, the expert approach was chosen as the first method of assessment of the visual quality of the Verde River. However, the method was not used without adaptation. Due to the linear nature of the river corridor, the BLM method was modified as described below to suit the specific conditions of the subject area.

### **Method**

In July and August of 1990, the expert evaluation was conducted for the segment of the Verde River from the Tapco substation to Beasley Flat by the ASU researchers from the Department of Planning, College of Architecture and Environmental Design. This evaluation was limited to the river study corridor and areas visible from within this corridor. The entire length of the river was canoed so that areas inaccessible by foot or vehicular travel could be inventoried with the same consistency as accessible areas. Canoeing also provided the most efficient means of obtaining a continuous vantage point just above the water surface of the river. This viewing condition allowed the researchers to be consistent in their definitions of scenic quality factors.

The expert evaluation process uses three factors to classify visual resources: scenic quality, sensitivity levels, and distance zones. The first of these was used as recommended by BLM, the second and third were modified to accommodate specific conditions.

Scenic quality is defined by BLM as "a measure of the visual appeal of a tract of land" (1986, p.2). Seven factors are used to determine scenic quality: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. These factors are evaluated and scored in each of previously determined Scenic Quality Rating Units (SQRUs), which are sections of the planning area chosen for their similarities. The evaluation and scoring is done by means of a field inventory (see sample, Appendix A) which allows the observer to consistently describe the landscape characters of landform/water, vegetation, and structure in terms of the four criteria of texture, color, line, and form. Narratives are also used, both to describe the landscape and to increase the visual awareness of the observer. The seven factors of scenic quality are then rated with a scoring range of +5 to -4. The scores for each SQRU are tabulated and the SQRU is placed in one of three classifications, as follows:

- **Class A:** (19 - 33 points)  
Areas that combine the most outstanding characteristics of each rating factor.
  
- **Class B:** (12 - 18 points)  
Areas in which there is a combination of some outstanding features and some that are fairly common to the physiographic region.
  
- **Class C:** (0 - 11 points)  
Areas in which the features are fairly common to the physiographic region.

Each SQRU is numbered and mapped on an overlay to show its location and its relationship to other units in the planning area.

Sensitivity levels are defined by BLM as "a measure of public concern for scenic quality" (1986, p. 3). Of the three factors in BLM's visual management system, the determination of sensitivity levels is, according to some researchers, the least effective because it does not accurately measure public concern for scenic quality (Laughlin and Garcia, 1986).

BLM uses various indicators of public concern to rate land as having high, medium, or low sensitivity levels. These indicators include the following factors:

- Type of users

There are different types of land users, each of which may have a different sensitivity to the landscape. For instance, the perceptions of recreational users will differ from those of workers passing through an area.

- Amount of use

Large numbers of people who see and use an area will have an effect on the sensitivity of the area.

- Public interest

Indicators of public interest are newsletters, newspaper articles, and public meetings. If there is much public discussion of an area and its visual quality, it is deemed to have a high public interest sensitivity level.

- Adjacent land uses

Land uses adjacent to the subject area can affect the visual sensitivity of the area. For instance, commercial development surrounding an area will lower its visual sensitivity, whereas residential or open space uses will enhance this factor.

- Special areas

In these areas, sensitivity is based on management objectives such as those of natural areas, wilderness areas, wild and scenic rivers, scenic areas, scenic roads or trails, and areas of critical environmental concern.

Sensitivity Level Rating Units (SLRUs) are determined by examining the above factors for different sections of the planning area and rating each section high, medium, or low. Based on definitions of the above factors, the entire river corridor was evaluated as having a high sensitivity level. Public concern for the river is reflected both in the public uses of the river as recreation, as an economic resource, and in the many political issues surrounding its use and development. Therefore, since the sensitivity level was determined to be uniform (high) for the entire length of the river, it became an evaluative constant and was not spatially mapped.

BLM's third factor for the classification of visual resources is that of distance zones (BLM, 1980). There are three distance zones based on visibility from a specified vantage point. The first, foreground-middleground (F/M), is defined as an area seen from a viewing point at a distance of less than three to five miles. The second or background (BG) zone is a seen area beyond the F/M zone but usually less than 15

miles away. The third or seldom-seen (SS) zone is hidden from view. These classifications lent themselves to the Verde River visual assessment after some modifications. The foreground-middleground became the most important distance zone, due to a high level of enclosure created in the river corridor by surrounding vegetation and landforms. The background was primarily seen longitudinally as an enframed end view to the river corridor, as opposed to existing at a certain distance in many or all directions. Seldom-seen distance zones were often lands adjacent to the river and outside the riparian gallery forest which were visually obstructed by the vegetative structure.

Due to the importance of the foreground-middleground zone, it was separated into two components which were each assessed separately. The criteria used for separation into two zones are based on the details that a person looking at the view can actually see. The foreground in this analysis corresponds most closely to the human scale. Surface textures, branching habit of individual trees, and a full range of surface colors can be seen clearly. The middleground corresponds to a larger scale of local surficial geology and development patterns. Complete surface features such as tree stands and small landforms can be seen.

These criteria derived from the actual details visible to the observer can also be applied to the background distance zone. Atmospheric effects often reduce colors to blue-grays, and surface characteristics are lost. This was often found to be the case in the subject area, with the more distant zones losing most of their texture and color. Thus, background views became evaluative factors of the middleground.

As described above, the BLM divides a planning area into SQRUs, which are sections chosen for their similarities. Each SQRU is rated and mapped to show its scenic value after scoring has been completed. In the case of the Verde River corridor, it was determined by the ASU researchers that this method needed some modification to be applicable to the linear nature of the planning area. Hull and Revell (1989) state that the task of sampling the landscape is often neglected, yet it is a critical first step in any visual assessment which is to follow. The choices made at the outset of the assessment process will influence the outcome as much as the actual aggregation of values assigned to each view. The choice of view stations for the Verde River visual assessment was made on site and was influenced by the unique character of the planning area.

For the Verde River corridor, the sampling technique used led to river divisions of 99 segments, which were labeled scenic reaches. "Reach" is a hydrological term defined as "a portion of a waterway between two locks or gages, the length of a channel, uniform with respect to discharge, depth, area, slope" (Parker, 1984). For the purposes of this analysis, "scenic reach" is understood to mean a stretch of river uniform with respect to the views available to an observer within that reach. Traveling downriver (the same is true for upriver travel, though this is generally not done by canoe), the sequence of views is such that at each bend of the river, the viewshed changes, and the observer enters a new scenic reach. Every scenic reach has a midpoint, from which the scenic analysis was carried out. The mid-reach view station was chosen

strategically because it provided unique views of spatial zones along the river with minimum overlap of foreground and middleground elements from adjacent scenic reaches. The mid-reach stations allowed the researchers to treat each viewshed separately and allowed viewing angles of 360 degrees due to the slow pace of the river current. River users such as hikers, horseback riders, and boaters were assumed to use the river corridor in similar fashion, with viewsheds corresponding to similar scenic reaches. Each scenic reach and corresponding viewshed was rated using the BLM technique for SQRUs. Descriptive notes, sketches, and photographs supplemented the scoring. The scenic quality scores and classifications for each of the 99 segments were mapped on Maps SQ 1 and SQ 2.

The BLM expert evaluation method for visual assessment is designed to minimize by its standardized approach the cognitive and experiential observances of the researcher. However, during the data gathering and analysis of the viewsheds of the Verde River, the researchers found that often their individual evaluations of a scenic reach did not correspond with those of their colleagues. In these instances, a group consensus was sought and reached, often with the aid of group discussions and the viewing of representative viewshed slides.

### **Findings**

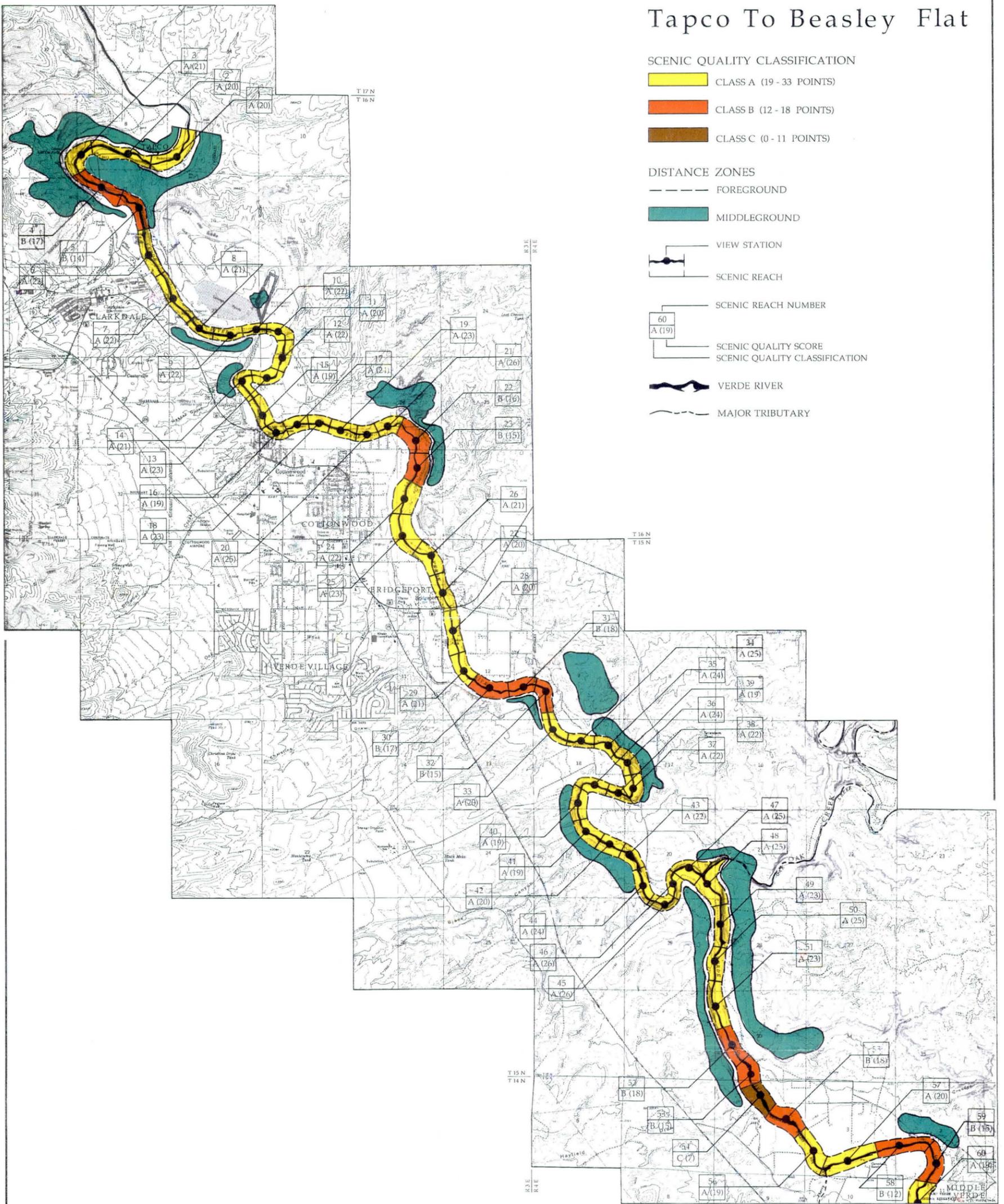
The expert evaluation findings are as follows. Maps SQ 1 and SQ 2 show two factors of the three which BLM uses in its expert evaluation process: distance zones and scenic quality scores. The third, sensitivity levels, was not mapped due to the constant nature of public concern for the entire river corridor.

Of the BLM's three distance zones, only the first, foreground-midground (F/M), was mapped. As described above, the F/M zone was divided into its components of foreground and midground. As shown on the maps, the foreground represents the majority of the visual experience of the river corridor, with portions of midground in certain areas. The visible background zones were treated as evaluative factors of the midground. Due to the vegetative structure forming visual enclosures, adjacent land uses that would otherwise degrade the river's visual quality were not visible.

The scenic quality scores were mapped, showing the results of BLM's rating system as it was applied to the scenic reach divisions of the Verde River corridor. Maps SQ 1 and SQ 2 show that there are 83 scenic reaches with a score of A, 14 with a score of B, and 2 with a score of C. These scores reflect respectively a high, middle, and low visual rating. The preponderance of A ratings is explained by the fact that the Verde River corridor is an unusual type of landscape in the area. The river represents the presence of water in an arid environment, with a variety of vegetation not found in adjacent areas. Its physiography is also visually unique, with the adjacent midground distance zone often consisting of striated colors of the limestone of the Verde Formation.

# VERDE RIVER CORRIDOR STUDY

## Tapco To Beasley Flat



### SCENIC QUALITY CLASSIFICATION

- CLASS A (19 - 33 POINTS)
- CLASS B (12 - 18 POINTS)
- CLASS C (0 - 11 POINTS)

### DISTANCE ZONES

- FOREGROUND
- MIDDLEGROUND
- VIEW STATION
- SCENIC REACH

- SCENIC REACH NUMBER
- SCENIC QUALITY SCORE
- SCENIC QUALITY CLASSIFICATION
- VERDE RIVER
- MAJOR TRIBUTARY

## SCENIC QUALITY

## SQ 1

Prepared By:  
DEPARTMENT OF PLANNING  
COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN  
ARIZONA STATE UNIVERSITY

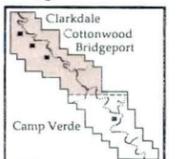
SPRING, 1991

Prepared For:  
ARIZONA STATE PARKS  
VERDE NATURAL RESOURCE CONSERVATION DISTRICT  
ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Map Base: USGS 7.5 min. Quadrangles (Clarkdale, Page Springs, Cottonwood, and Cornville)

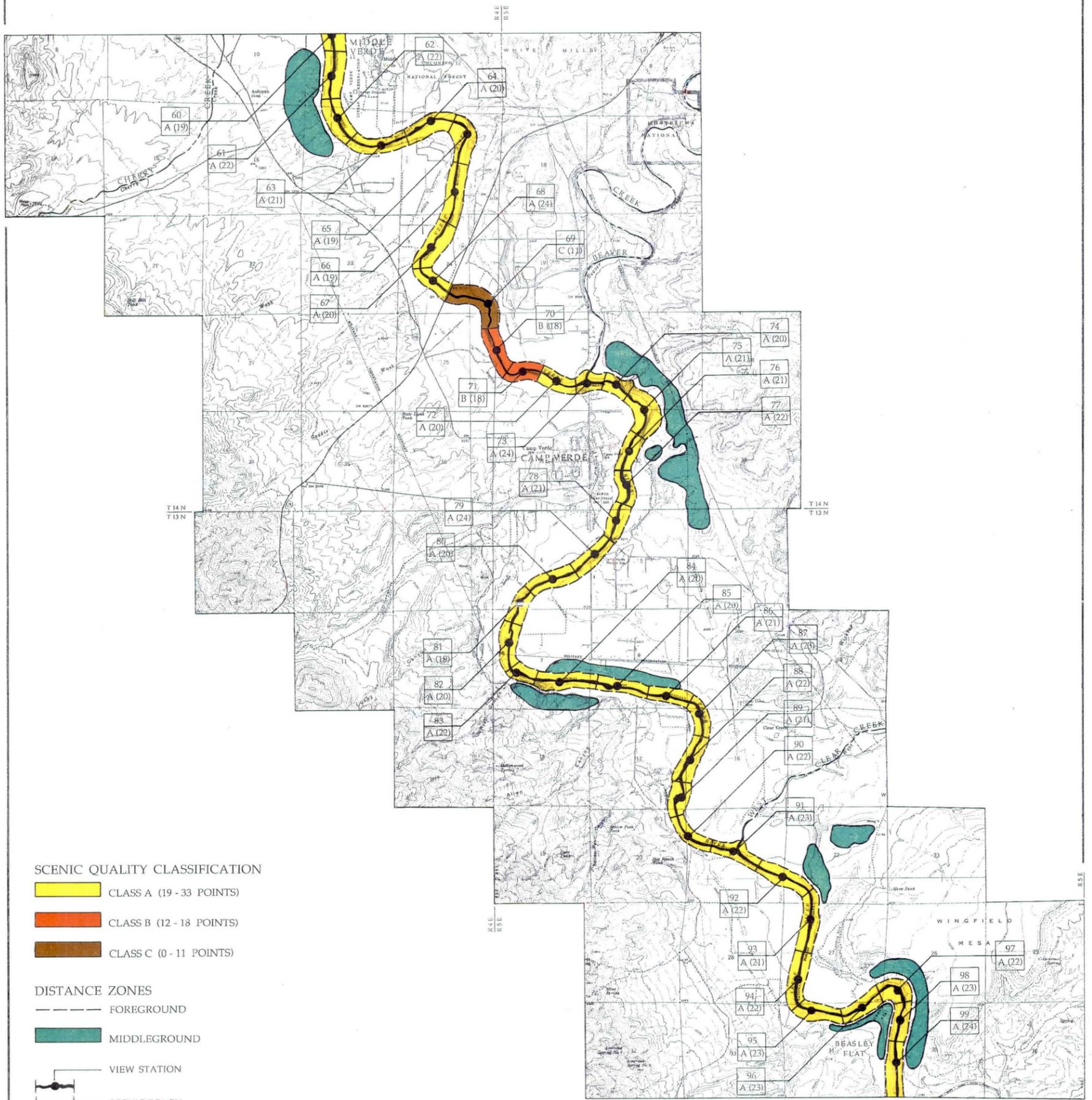


640 Acres  
160 Acres



# VERDE RIVER CORRIDOR STUDY

## Tapco To Beasley Flat



### SCENIC QUALITY CLASSIFICATION

- CLASS A (19 - 33 POINTS)
- CLASS B (12 - 18 POINTS)
- CLASS C (0 - 11 POINTS)

### DISTANCE ZONES

- FOREGROUND
- MIDDLEGROUND

- VIEW STATION
- SCENIC REACH

- 60  
A (19) SCENIC REACH NUMBER
- 60  
A (19) SCENIC QUALITY SCORE  
SCENIC QUALITY CLASSIFICATION

- VERDE RIVER
- MAJOR TRIBUTARY

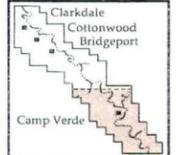
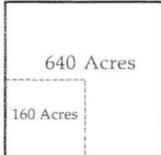
## SCENIC QUALITY

SQ 2

Prepared By:  
DEPARTMENT OF PLANNING  
COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN  
ARIZONA STATE UNIVERSITY  
SPRING, 1991

Prepared For:  
ARIZONA STATE PARKS  
VERDE NATURAL RESOURCE CONSERVATION DISTRICT  
ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Map Base: USGS 7.5 min. Quadrangles (Middle Verde, Camp Verde, Arnold Mtn., and Horner Mtn.)



The reasons for the B and C ratings obtained vary along the length of the river. Descriptions of the findings are as follows:

- Scenic Reach Nos. 4 (B) and 5 (B)

Copper smelter mill tailings are visible in these viewsheds. The mill tailings by themselves would rate very low in any visual assessment, but are here given a score of B because they are located in an area extremely high in scenic quality, except for the cultural modification of the tailings.

- Scenic Reach Nos. 22 (B) and 23 (B)

This area shows a prominent exposure to riverside housing and cultivated lawns. There is also a stand of dead cottonwoods degrading the visual quality of the area.

- Scenic Reach Nos. 30 (B), 31 (B), and 32 (B)

Cultural modifications of mini-farms and hillside housing in this area degrade the visual quality.

- Scenic Reach Nos. 52 (B), 53 (B), 54 (C), and 55 (B)

An active sand and gravel mining operation, especially visible from Scenic Reach 54, causes a lower visual score. Activities peripheral to the mining, such as roads and structures, cause further lowering of the score. In this area, there is also incidence of bank stabilization, cattle grazing, and day-use recreation. The vegetative contrast and cover has been removed, resulting in loss of texture and color.

- Scenic Reach Nos. 58 (B) and 59 (B)

There is a mobile home park visible from Scenic Reach 59. Other cultural modifications include power lines, remnant diversion gates, mini-farms, and agriculture. The landform contrast is also reduced because of the flat slopes of the adjacent upland topography.

- Scenic Reach Nos. 69 (C), 70 (B), and 71 (B)

There is loss of landform contrast due to the gradual slopes. The vegetation is low in legibility and contrast in form, color, and texture. Cultural modifications include riverside housing and power lines, and also the loss of bank stability due to the intrusions of these cultural modifications.

The results of the expert evaluation method show the quality of the Verde Valley landscape to be quite high. Using the BLM criteria, most of the corridor is highly rated for its scenic quality. The basis of this quality is the natural environment: the river itself, related wetlands and riparian vegetation, and the surrounding landforms. Those areas with relatively lower scenic quality receive those ratings largely because of cultural disturbances such as the mill tailings, hillside housing, bank stabilization, sand and gravel mining, and agriculture.

**Verde River Corridor Study**  
**Public Valuation**



## **PUBLIC VALUATION**

Because the VRCP is locally directed and is concerned with opinions of the residents, a public valuation visual assessment of the Verde River corridor was also conducted. The findings of this method are complementary to the expert evaluation in the previous section and reflect two paradigms suggested by Zube et al. (1982). The psychophysical paradigm uses the evaluations of the observer as a respondent and results in a numerical or statistical expression of perceived values. This is the approach used in the public valuation section of this analysis. The cognitive paradigm of perception, which uses the observer as a processor, yields results which have to do with meaning and ratings of satisfaction and dissatisfaction. This second paradigm, if dealt with in its entirety, is not in the scope of this study, but it is important for future study in that it incorporates most accurately the personal values of the observer.

The public valuation method for this report was patterned after a similar process undertaken in the Pinelands National Reserve in New Jersey (McKenzi, 1979). Although conducted in the eastern United States, there are similarities between the Pinelands and the Verde Valley. Both regions are largely in private ownership with strong traditions of local governance. Both regions are rich in ecological and scenic values. The Pinelands study was directed by landscape architect Ricki McKenzi of the Philadelphia regional office of the U.S. Department of Interior in 1979.

In this study, the public's preference for different landscape types was identified for the Verde River corridor. These landscape types could influence future policy decisions because of their basis in the public participation process, which yields the most democratic assessment of visual quality because it is undertaken with the residents of an area themselves.

### **Method**

The public valuation process began with field inventory and photo documentation of the river corridor to identify, describe, and map visual landscape types. The ASU team completed these tasks during the same period that the expert evaluation was undertaken. Visual landscape types were initially established in the field using certain characteristics that distinguish one visual landscape type from others. Field notes were recorded on a form that included prompts for standardizing descriptions of visual landscape types (see sample, Appendix B). The characteristics used to distinguish visual landscapes include, first, a classification of the landscape type as natural, cultural, or a combination of natural and cultural. Further description was added for the categories of landform, vegetation patterns, water forms, rock formations, color, texture, harmony, variety, contrast, adjacent scenery, scarcity, and cultural modification.

Standardized descriptions of the visual landscape types from the field inventory were used to determine the landscapes' legibility, complexity, spatial definition, and mystery. These general components of visual perception formed the basis of the visual landscape type narrative. Each general component and the variables within each component are listed below.

**Legibility** is the clarity or coherence of a landscape, created by the recognition of visual elements (Smardon, 1983). Legibility variables include definition and contrast.

- Low vegetation definition legibility - Shoreline obstructed by tangled masses of vegetation that obstruct both visual penetration and physical access (Lee, 1978).
- High vegetation definition legibility - Visual penetration of individual plant forms and branching structure is unobstructed and the vegetation types are discernable. Physical access is possible through the shoreline vegetation (Lee, 1978).
- Low water surface contrast legibility - Slow moving turbid water with little or no surface reflection (Lee, 1978).
- High water surface contrast legibility - Highly reflective laminar water surface or moving water that produces visual effects such as riffles, rapids, or falls (Lee, 1978).
- Low landform contrast legibility - Gradual or flat slopes produce weak visual edges or spatial enclosure. Weak edges result from the junction of two similar landforms (Lee, 1978).
- High landform contrast legibility - Steep or vertical slopes produce strong visual edges or spatial enclosure. Strong edges are the result of two contrasting dissimilar landforms merging (Lee, 1978).

**Complexity** is the number and relative distribution of landscape elements discernable to the viewer (Smardon, 1983). Complexity variables include diversity and complexity.

- Vegetation diversity - Vegetative / water interspersion patterns directly related to the number of dominant vegetation groups visible. Patterns include: homogeneous open water, homogeneous completely vegetated, interspersed, and complexly interspersed (Lee, 1978).
- Low skyline complexity - The edge created between the sky and surrounding landform or vegetation is low, and regular in form and height (Lee, 1978).

- High skyline complexity - The edge created between the sky and surrounding landform or vegetation is high, and irregular in form and height (Lee, 1978).
- Low shoreline complexity - Straight or channelized shorelines are weak in visual contrast because the simple shore pattern becomes monotonous and reflects cultural modifications (Lee, 1978).
- High shoreline complexity - Strong visual contrast is created because the water conforms to enclosing irregular shoreline. This shore pattern reflects the processes of nature (Lee, 1978).

**Spatial Definition** is the arrangement of three-dimensional space within the visual array (Smardon, 1983).

The variable for spatial definition is enclosure.

- Extremely enclosed - Space-defining elements of vegetation and/or landform produce dominant enclosure approaching a canopy. Immediate foreground dominates. Shoreline configuration is recessed and obscured and vegetation and/or landform produce a high degree of end closure (Smardon 1983, p. 114).
- Moderately enclosed - Space-defining elements of vegetation and/or landform produce enclosure, no canopy present. Shoreline configuration is recessed and obscured. Foreground dominates (Smardon 1983, p. 114).
- Average enclosure - Space-defining elements are present and provide identifiable scale. Shoreline configuration is linear or undulating with occasional small inlets, but no strong recessed or projecting areas. There is awareness of foreground and middleground (Smardon 1983, p. 114).
- Moderately open - Space-defining elements are present, but shoreline configuration projects outward and is exposed. Foreground and middleground elements are dominant with visual emphasis on the middleground (Smardon 1983, p. 114).
- Extremely open - Space-defining elements are minimal. Middleground dominates. Shoreline configuration may be linear, exposed, or recessed (Smardon 1983, p. 114).

**Mystery** is the promise of additional information and encourages an individual to enter a visual display in order to seek additional visual data (Smardon, 1983).

The landscape types were subjected to a selection process which was carried out by the researchers over a period of several months and utilized the landscapes' legibility, complexity, spatial definition, and mystery as part of the evaluation process. A total of 522 thirty-five millimeter color slides were taken during the inventory process. The initial selection consisted of a total of 170 types. Through a series of elimination procedures, these 170 types were reduced to 104, and a further series of eliminations led to a final total of 29 landscape types. The process of elimination was actually a process of combining the types on the basis of similarities, and then evaluating the resultant categories on the basis of their differences. The 29 visual landscape types represent the range of landscape types found within the study area. A representative color slide was selected for each of the 29 types. These images became the basis of the slide program for the public valuation workshops.

Public involvement was sought to evaluate and indicate preference for the 29 visual landscape types. Seven public workshops were held during the period of November 1990 through March 1991. Groups were targeted in different ways. Initially three public workshops were scheduled on two different weekdays at different times of the day, and on one weekend day. The meetings were also scheduled in three different towns along the river corridor: Cottonwood, Clarkdale, and Camp Verde. Various means of notification and advertising were used including articles in the local newspaper *Verde Independent* and telephone conversations with individuals on the VRCP mailing list. Students from Mingus Union High School also served as a respondent group. The intent was to attract a broad and diverse group from the Verde Valley. The total number of volunteer respondents from the seven workshops was 62.

A procedure was standardized for the workshops. The respondents were asked to fill out a questionnaire listing such information as age, occupation, education, their childhood environment, and their uses of the Verde River Valley (see sample, Appendix C). The compilation of this information indicates that a varied sample from the Verde Valley was represented in the landscape preference selection (see Appendix D). These data will be used in a future study which will partially focus on the composition of this study sample and its relationship to the findings (Whitmore, forthcoming). The respondents were also given verbal directions explaining the slide presentation they would see, and how they were to record their responses. Each workshop lasted approximately an hour and a half. As a result, there was a significant commitment made to the project by workshop participants.

They were shown a total of 406 pairs of slides which compared every landscape type to every other landscape type. The following equation was used to determine the number of slide pairs required:

**Combination Equation:**

$${}^n C_r = \frac{n!}{r!(n-r)!}$$

$n$  = Number of Landscape Types (29).  
 $r$  = Members in Combination Subset (2).

Preference selections were recorded on a worksheet with these five choices (see sample, Appendix E):

- Left hand slide better
- Right hand slide better
- Both slides equally good (Draw votes)
- Both slides equally bad (Draw votes)
- No preference (Draw votes)

It can be seen from these five preferences that only the first two represent a positive decision by the respondent in which he/she must make an exclusive choice between the two slides. The other three are draw votes, and the workshop participants were discouraged from voting draws. The slides were shown in rapid succession (8 to 10 second intervals) to minimize the respondents' interjection of their personal experiences of the landscape and help them to focus on the landscape type as a visual stimulus only.

Individual landscape score tabulation required the conversion of slide preferences into preference scores and then the computation of individual scores for each landscape. The first step was to assign a numerical value to each preference response. The five types of preference choices and the scoring method utilized are shown below:

**Preference Selection:**

- Left Hand Slide Better
- Both Slides Equally Good
- No Preference
- Both Slides Equally Bad
- Right Hand Slide Better

**Preference Scoring Method:**

Left Slide Score	Right Slide Score
1	-1
1	1
0	0
-1	-1
-1	1

Computation of landscape scores began with the summation of the twenty-eight preference scores possible for each slide to receive. At this stage the possible scoring range was +28 if a slide was preferred over all other slides through -28 if a slide received no preference selection at all. The negative numbers in this range would have implied a false value system by associating preferred landscapes with positive values, and landscapes receiving negative values as being inferior. To eliminate the extraneous preference values, the scoring equation shown below was used and resulted in a scoring range with all positive values. The maximum score a landscape type could now receive is +28 and the minimum preference score is 0.

**Scoring Equation:**

$$\text{Individual Visual Type Score} = \frac{\sum Xi + 28}{2}$$

$Xi = 28$  preference scores per visual type.

**Scoring Range:**

Most Preferred  
Least Preferred

28
0

The composite visual landscape type score tabulation was simply the mean scores from the sixty-two respondents of the Verde Valley sample. The preference range is identical to the individual visual type scores. The composite scoring equation and preference range is shown below:

**Scoring Equation:**

$$\text{Composite Visual Type Score} = \bar{X} = \frac{\sum_{i=1}^N Xi}{N}$$

$Xi =$  Individual Visual Type Score.  
 $N = 62$

**Scoring Range:**

Most Preferred  
Least Preferred

28
0

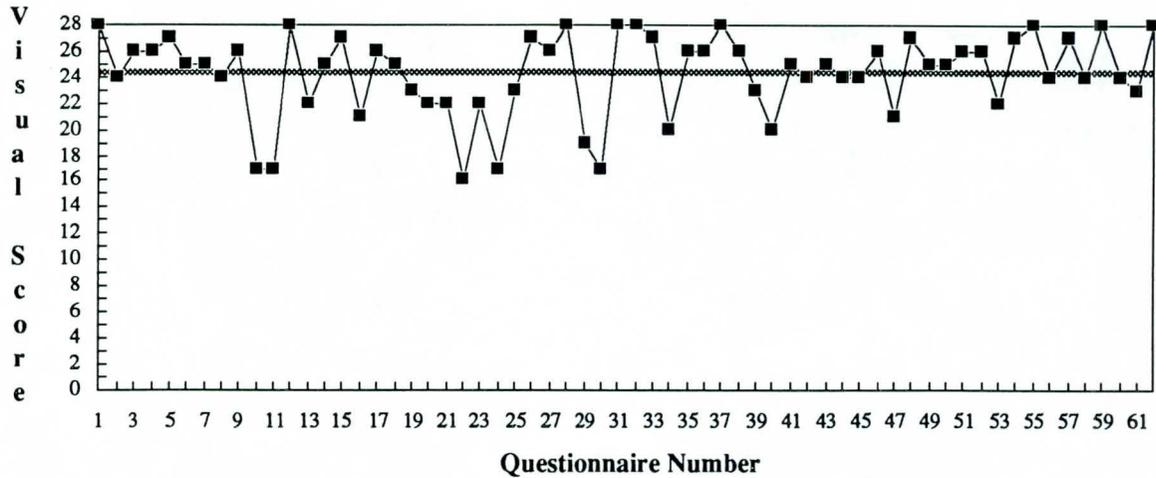
The composite visual type scores (mean scores) became the basis for ranking of the visual landscape types. The ranked array begins with the landscape type receiving the highest composite visual score and descends through the twenty-nine landscape types to the lowest composite visual score.

## **Findings**

After the 62 public valuations were scored, tabulated, and ranked, the 29 landscape types were arranged in order of preference. The following photographs were chosen to represent each of these 29 landscape types. These were also the 29 landscapes shown to the workshop participants, from which they made their selections. In the workshop, color slides were used. Here, the photographs are reproduced in black and white and appear in rank order of preference. Each photograph is accompanied by the scoring of the landscape as determined by the workshop participants and a narrative describing the landscape.

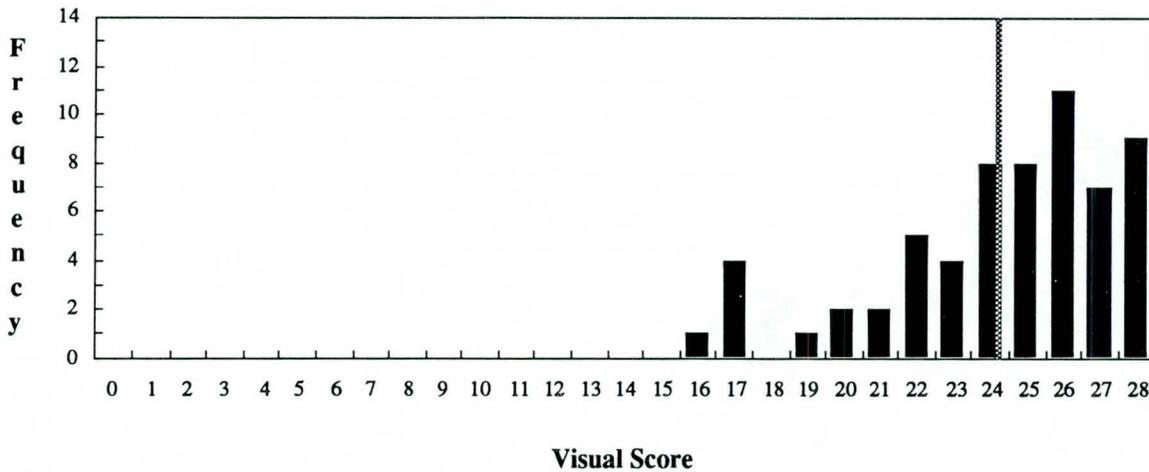
**VISUAL LANDSCAPE TYPE No. 12**

**Individual Scores**



..... Composite visual score = 24.3

**Scoring Distribution**



..... Composite visual score = 24.3

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
1	Most Preferred	62	24.2903

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
16	28	12	0	25	26

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
3.1695	0.4025	10.0455	13.0482	0.3097	-0.9911

**Visual Landscape Type Illustration**

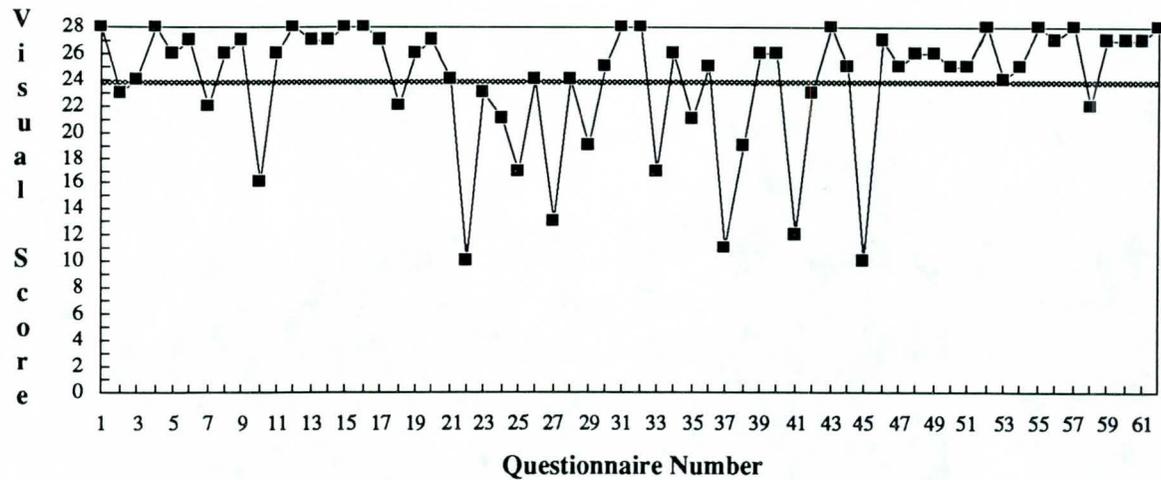
Bill Whitmore

**Visual Landscape Type Narrative**

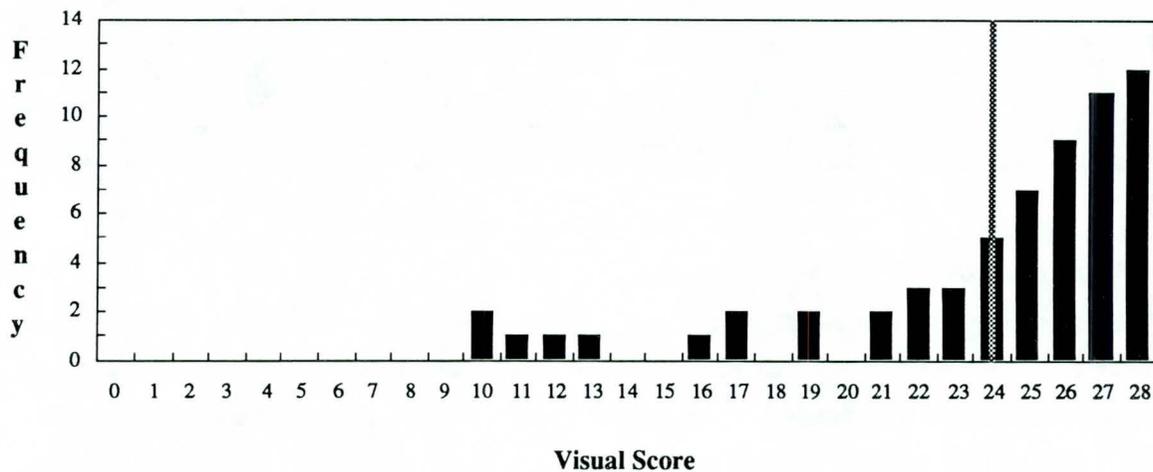
The Limestone Bluffs (Type No. 12) are generally undisturbed natural landscapes, with power lines visible in a few cases some distance from the river. There is some past cultural modification apparent from Native American ruins, also in the distance. The vegetation is very legible as a result of its stark contrast in form, color, and texture from the surrounding white limestone as well as from the river. The contrast is striking due to the steep terrain and highly textured cliffs. The water is slow moving and still, also contributing to the contrast of the landscape. The shoreline is complex and irregular with emergent marsh along the banks. The skyline is fairly regular because the cliffs follow the river at about an equal elevation. The area is moderately open with a slight sense of mystery because of small caves in the surface of the cliffs. These features tend to draw one away from the river.

# VISUAL LANDSCAPE TYPE No. 5

## Individual Scores



## Scoring Distribution



## Scoring Statistics

Place in Rank Order:	Preference Category:	Count:	Mean:
2	Most Preferred	62	23.9194

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
10	22	18	0	26	28

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
4.7986	0.6094	23.0262	20.0614	1.7676	-1.6138

**Visual Landscape Type Illustration**



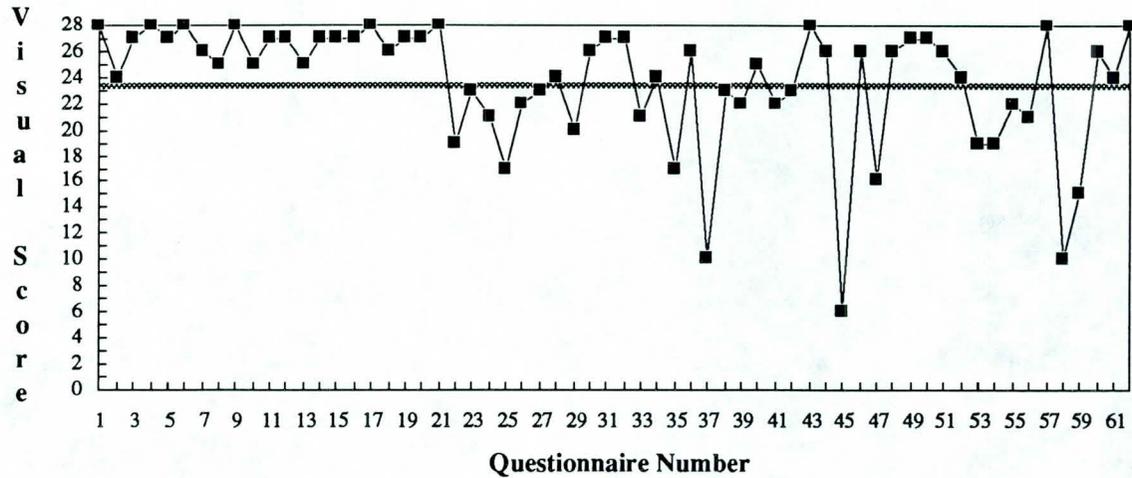
Bill Whitmore

**Visual Type Narrative**

The Diversion Dam Emergent Marsh Spillway (Type No. 5) is a low intensity, disturbed natural landscape. The disturbance is a result of upstream rubble diversion dams, recreation, and houses on the surrounding hillsides. Vegetation and landform definitions are low. There is moderate water-surface variation. The vivid green marsh vegetation contrasts highly with its surroundings because the emergent marsh is differentiated from the muted colors in the background vegetation and landform. This high contrast between the shoreline vegetation and background is heightened by shallow, reflective surface water. The marsh is interspersed between the water and the trees. The shoreline is complex and irregular, but the skyline has a low, regular form. The landscape is moderately open with considerable mystery.

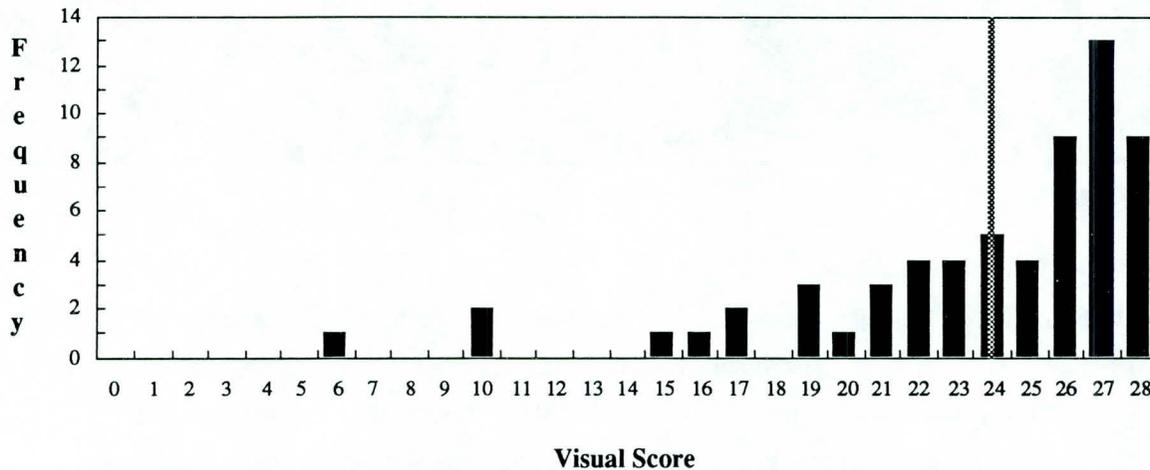
**VISUAL LANDSCAPE TYPE No. 8**

**Individual Scores**



..... Composite visual score = 23.7

**Scoring Distribution**



..... Composite visual score = 23.7

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
3	Most Preferred	62	23.6774

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
6	28	22	0	25.5	27

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
4.7762	0.6066	22.8123	20.1720	3.0056	-1.7370

**Visual Landscape Type Illustration**



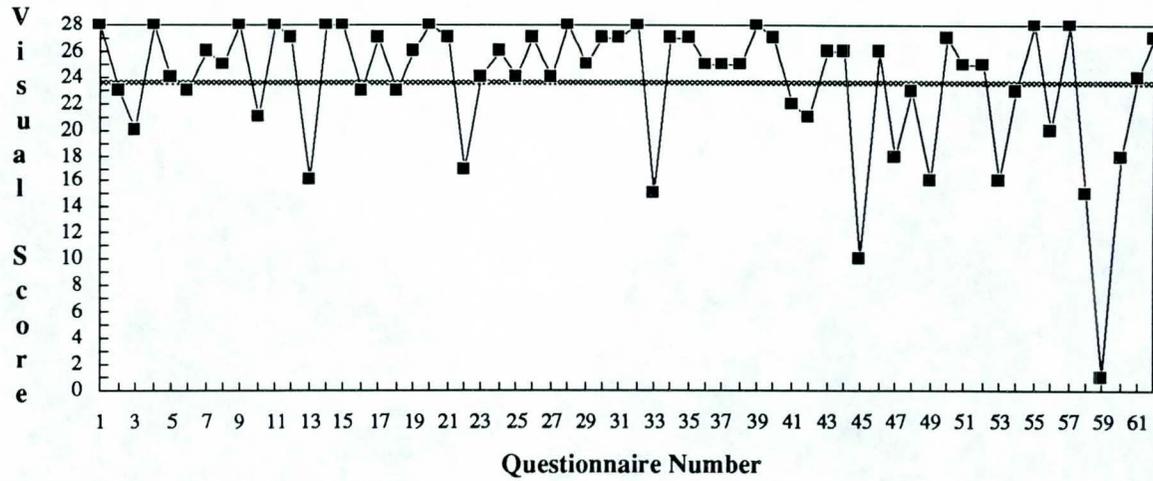
Bill Whitmore

**Visual Landscape Type Narrative**

The Still Water Emergent Marsh (Type No. 8) is appealing visually, but an ecological mess. Although this place appears to be an undisturbed natural landscape, it has actually been quite disturbed. This landscape type is unique and occurs but once along the river. Still water is often referred to as dead water because of the prevailing anaerobic condition. On the river bottom, black, gooey detritus has been deposited. This deposition is a result of the river drying up because of upstream diversion which cuts off the inflow of oxygenated water. In spite of this problem, it retains its scenic quality. The contrast is high as a result of the interspersed marsh vegetation, still water, and decomposed, floating organic material enframed by the dark shoreline cottonwood and willow forest. The shoreline and skyline are irregular, which contribute to the sense of mystery and become space defining elements which create extreme enclosure.

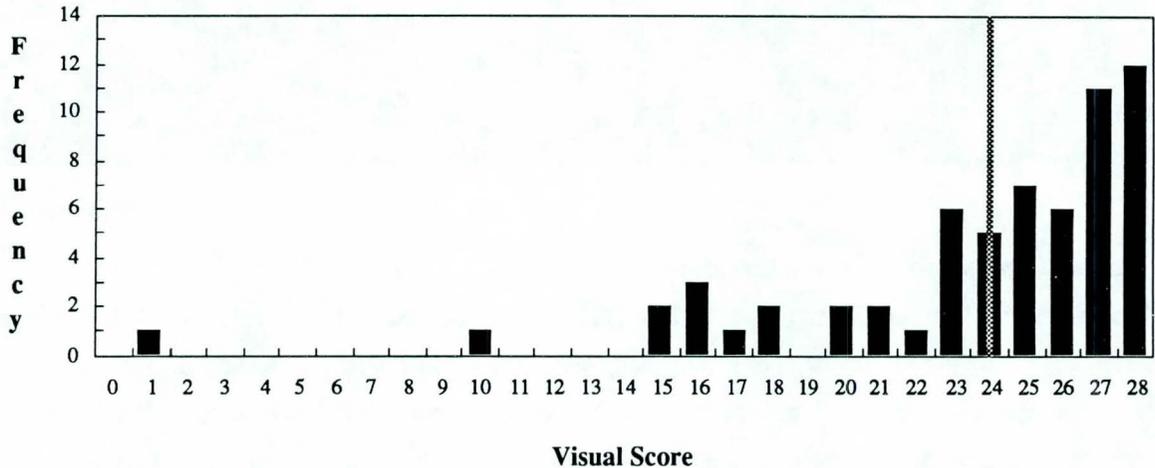
**VISUAL LANDSCAPE TYPE No. 9**

**Individual Scores**



..... Composite visual score = 23.7

**Scoring Distribution**



..... Composite visual score = 23.7

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:		
4	Most Preferred	62	23.6774		
Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
1	28	27	0	25	28
Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
5.0822	0.6454	25.8287	21.4643	5.2796	-2.0434

**Visual Landscape Type Illustration**



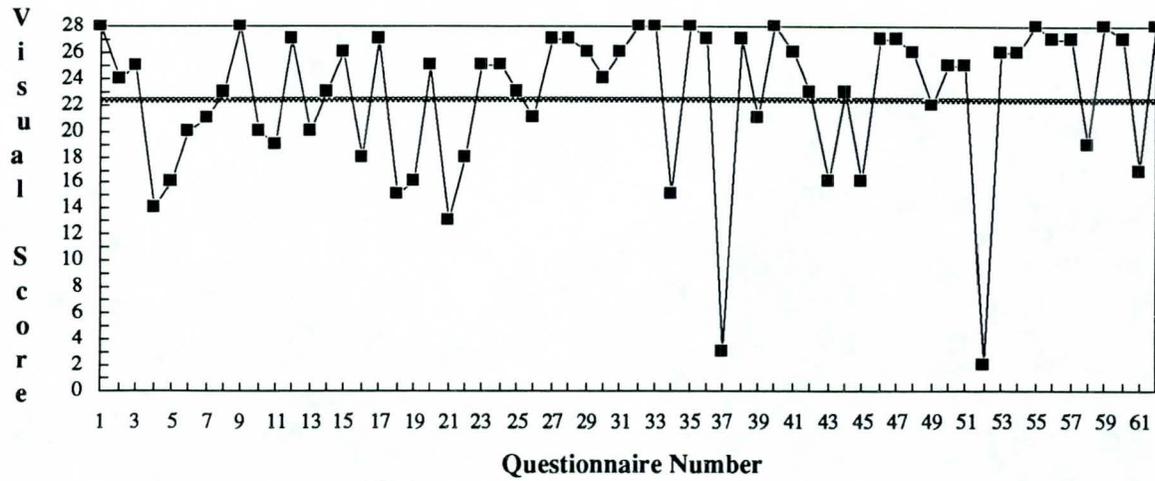
Bill Whitmore

**Visual Landscape Type Narrative**

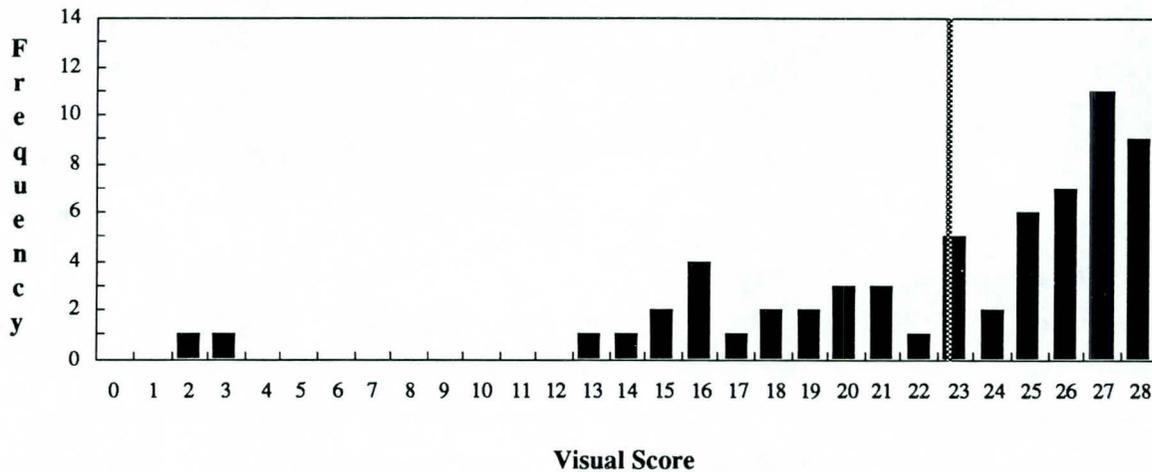
The Shallow Aquatic Bed-Emergent Marsh (Type No. 9) is an undisturbed natural landscape and a robust, healthy place. The water is clear and fast running. The shallow aquatic bed-emergent marsh dominates this lowland flood plain. The vegetative legibility is high because one can see the branching of the shoreline cottonwoods. The landscape is dominated by the vegetation with relatively narrow bands of water. Because of the dominance of the marsh vegetation, it is difficult to distinguish the shoreline. The major contrasting element is the play of light off the shallow riffles of the river. The skyline is high and irregular. There is moderate enclosure and lots of mystery.

**VISUAL LANDSCAPE TYPE No. 18**

**Individual Scores**



**Scoring Distribution**



**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
5	Most Preferred	62	22.6774

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
2	28	26	0	25	27

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
5.7081	0.7249	32.5828	25.1710	2.9124	-1.6077

**Visual Landscape Type Illustration**



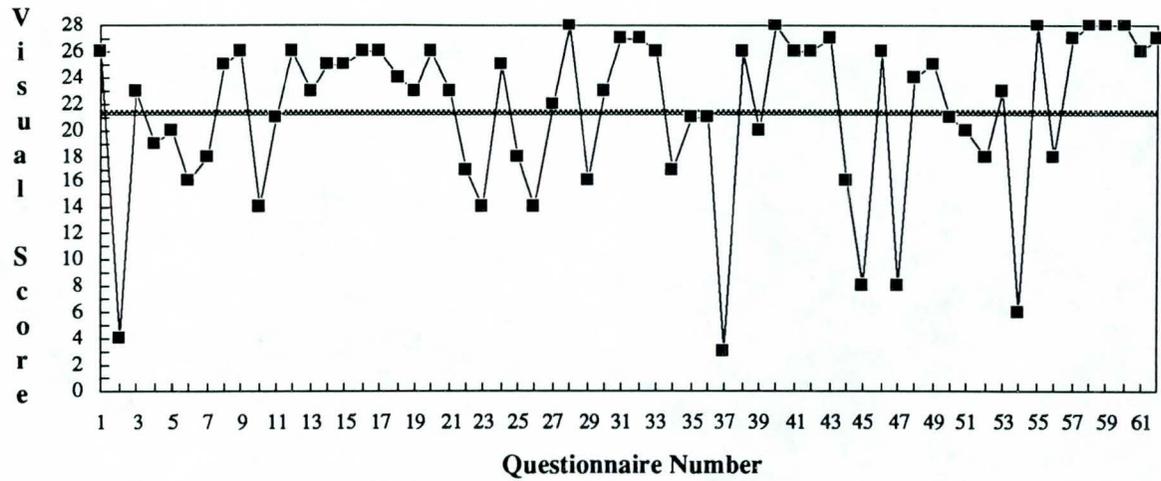
Bill Whitmore

**Visual Landscape Type Narrative**

The Cobble-Boulder Riffle Bar (Type No. 18) is an undisturbed natural landscape. Its major distinguishing feature, the cobble-boulder riffle bar, is created by an energy grade change in the river which has resulted in the deposition of the rocks. This landscape tends to occur in the southern reaches of the river where desert scrub vegetation is dominant. As a result, there is high contrast among several elements - the white boulders and dark, clear water; the dark green shoreline trees and muted, sparsely vegetated uplands; the scrub vegetation and the hillsides; and the white limestone and the tan slopes. A fluctuation of water surface level does not impact the surface water contrast, because when it is low water boulders are exposed and during high water there are riffles. The skyline is low and regular, however, the shoreline is complex and irregular. The landscape is moderately open with little enclosure.

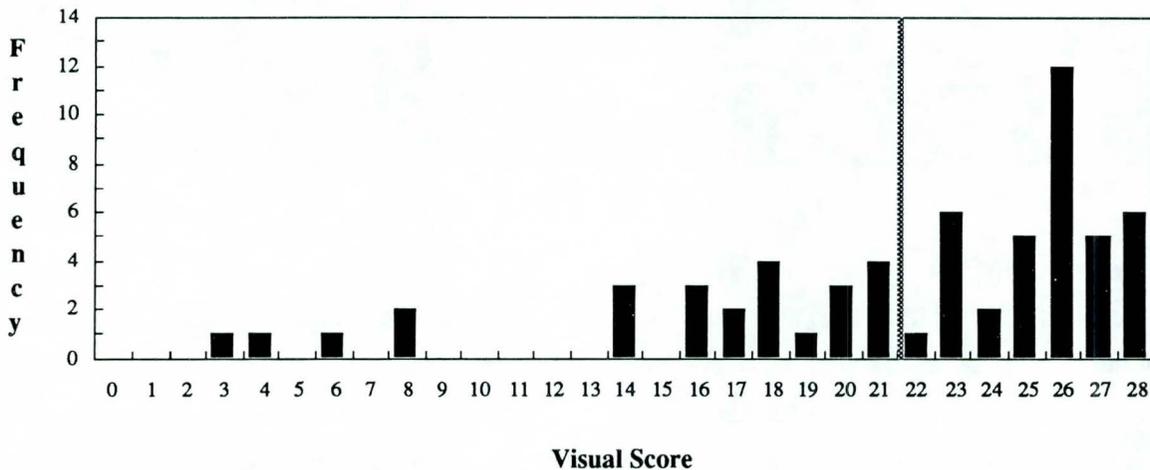
**VISUAL LANDSCAPE TYPE No. 7**

**Individual Scores**



----- Composite visual score = 21.5

**Scoring Distribution**



----- Composite visual score = 21.5

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
6	Most Preferred	62	21.5484

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
3	28	25	0	23	26

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.2086	0.7885	38.5468	28.8124	1.1883	-1.3109

**Visual Landscape Type Illustration**



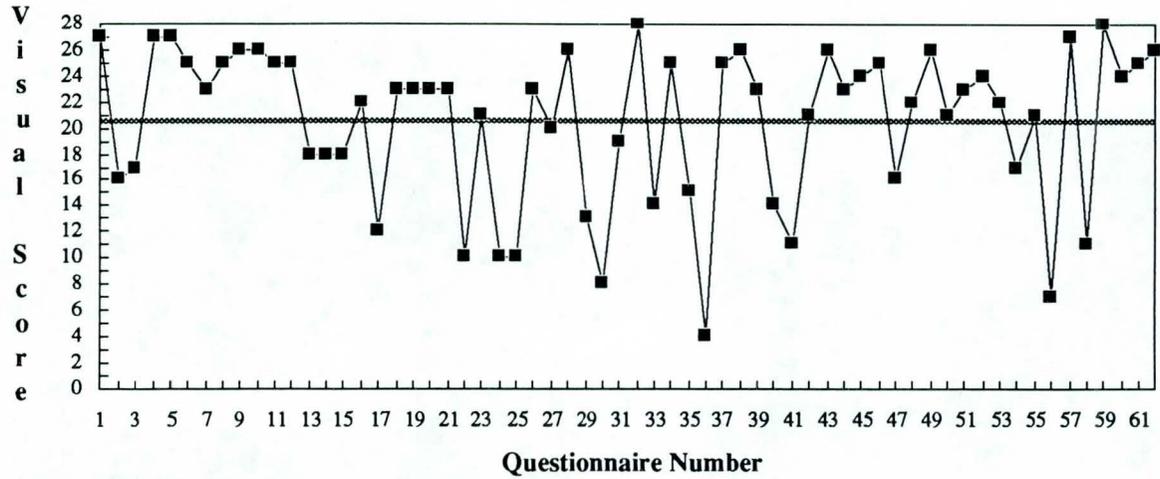
Bill Whitmore

**Visual Landscape Type Narrative**

The Limestone Terraces (Type No. 7) are a low intensity, disturbed natural landscape. The disturbance is a result of the erosion of the limestone terraces, a recreational access road, and hillside homes in the background. This is a unique landscape and only occurs once in this part of the Verde River. There is low vegetation definition, but the landforms are well defined. The limestone terrace with its coarse texture and light color contrasts the fine textured dark green tamarisk and seep willow as well as the still surface water in the foreground. The vegetation is complexly interspersed with the water and landforms. Both the skyline and the shoreline are irregular. The landscape is moderately enclosed with a dominant foreground. The space has an extremely mysterious feeling.

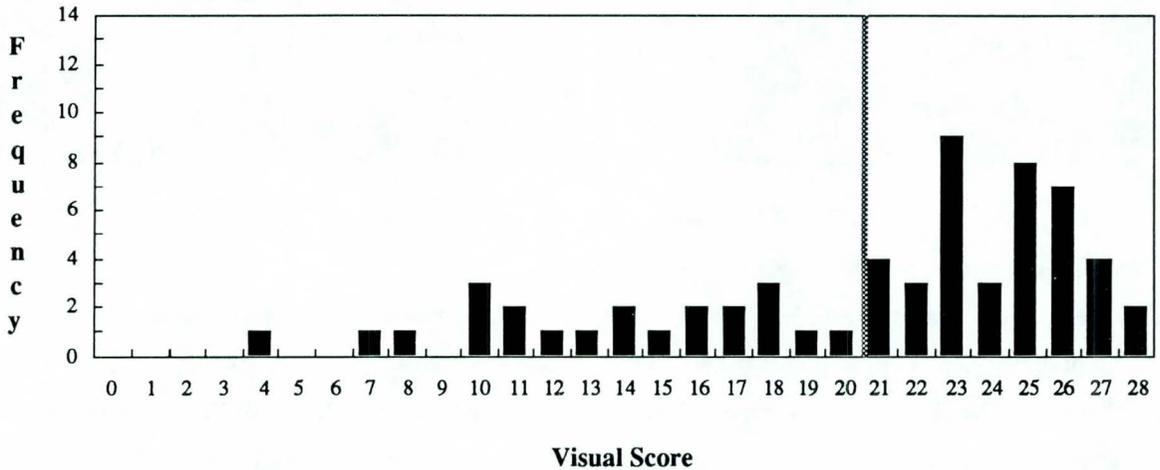
**VISUAL LANDSCAPE TYPE No. 4**

**Individual Scores**



----- Composite visual score = 20.5

**Scoring Distribution**



----- Composite visual score = 20.5

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:		
7	Preferred	62	20.5323		
Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
4	28	24	0	23	23
Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.0156	0.7640	36.1875	29.2983	-0.1479	-0.9309

**Visual Landscape Type Illustration**



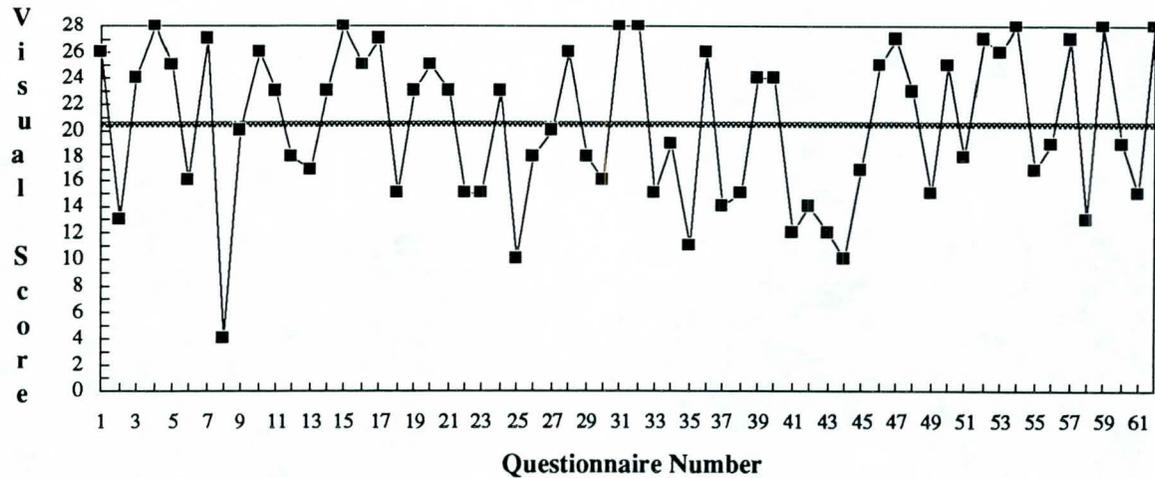
Bill Whitmore

**Visual Landscape Type Narrative**

The Cottonwood-Willow Gallery Forest (Type No. 4 ) is an undisturbed natural landscape framed by the gallery forest and by the Black Hills in the distance. The vegetative, water, and landform definitions are low. However, the contrast is moderate due to reflections in the still, homogeneous open water and color difference between the riparian vegetation and Black Hills. Its texture is fine while the edge is simple, yet well defined because of the contrast between water and shoreline. The landscape is moderately enclosed and possesses a high degree of mystery.

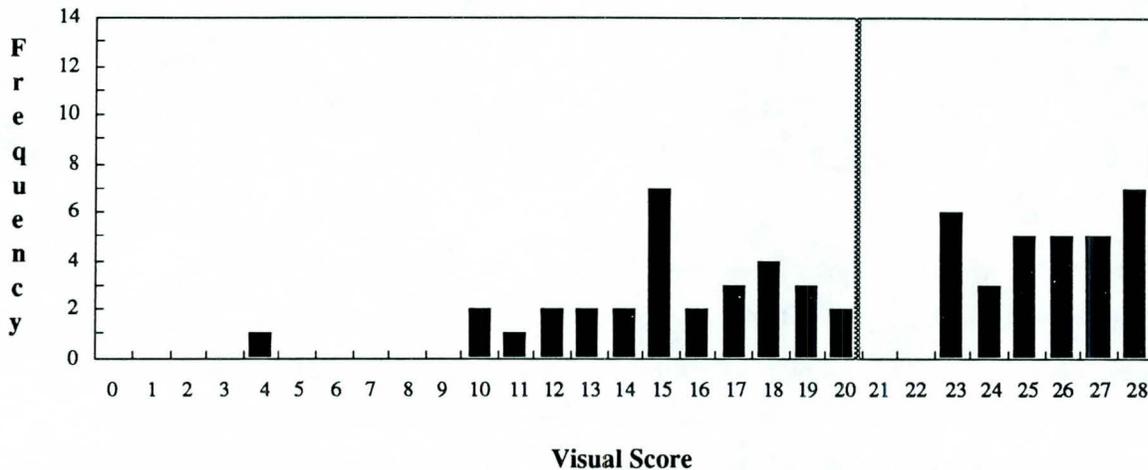
**VISUAL LANDSCAPE TYPE No. 19**

**Individual Scores**



----- Composite visual score = 20.4

**Scoring Distribution**



----- Composite visual score = 20.4

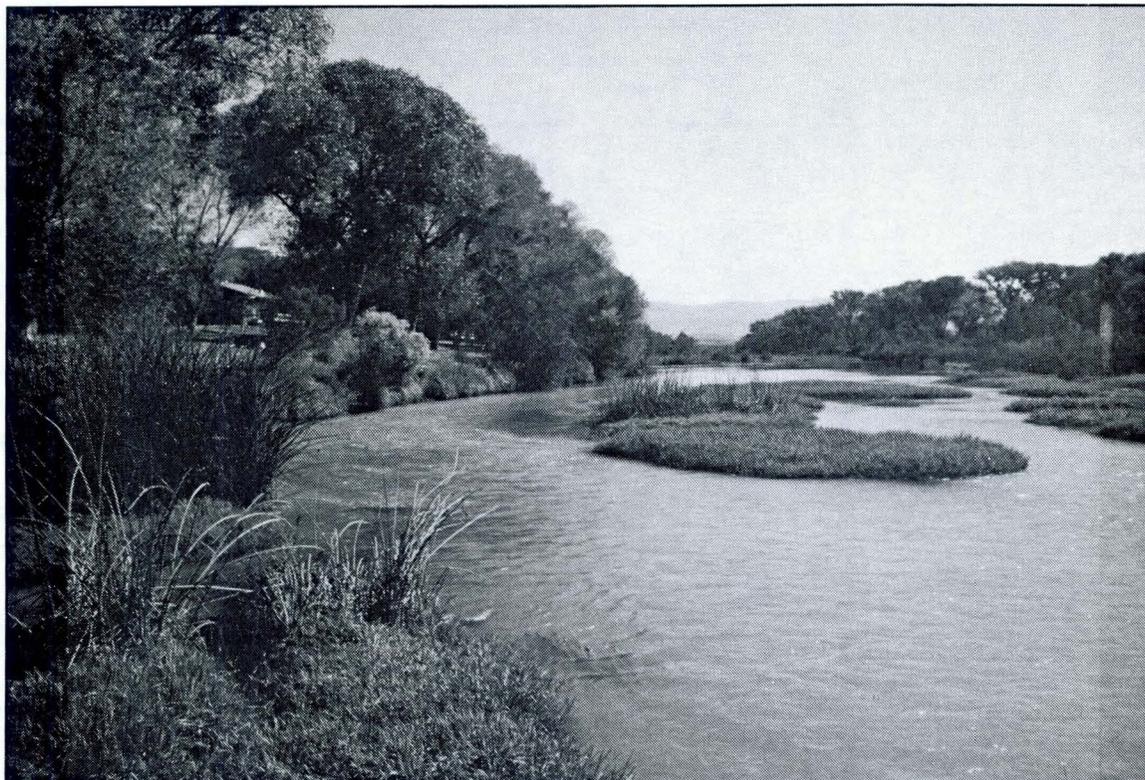
**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
8	Preferred	62	20.4194

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
4	28	24	0	21.5	*

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
5.9741	0.7587	35.6901	29.2571	-0.7593	-0.4241

**Visual Landscape Type Illustration**



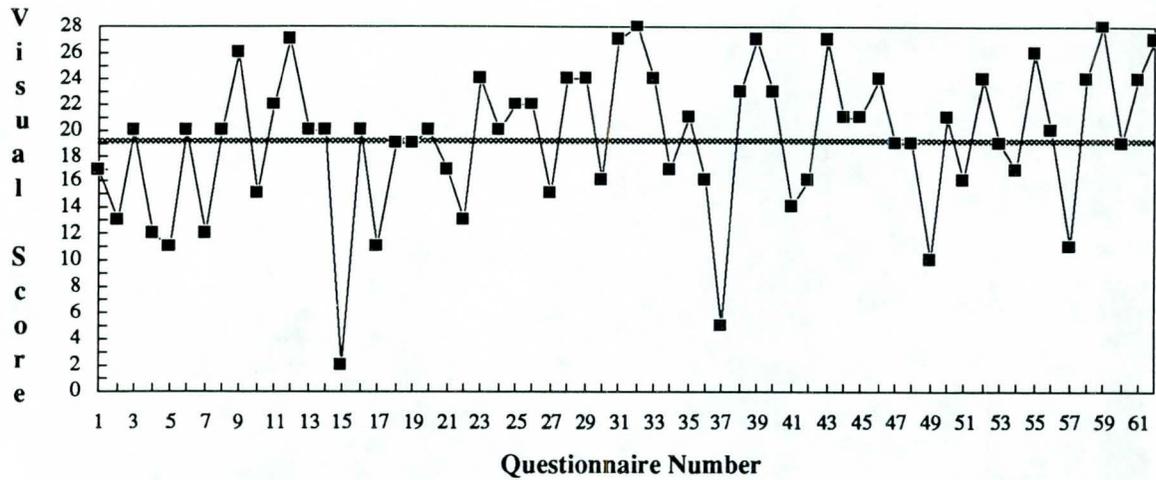
Bill Whitmore

**Visual Landscape Type Narrative**

The Riverside Residential Homes (Type No. 19) are low density, cultural landscapes with riverside residential homes. Even though closer to the river, these houses are less visually intrusive than the hillside homes. Visible cultural modifications include lawns and occasional utility poles. The vegetative legibility is high because of the human, manicured treatment of shoreline plants. The surrounding landforms are not visible because of the enclosure created by the trees. Contrast is created by the bright greens of the emergent marsh separating the slow, brown water and dark green shoreline trees. The water is interspersed with emergent marsh on gravel bars in the stream channel. Because of the enclosure, there is a high skyline. The shoreline is complex and irregular because of the emergent marsh. These areas are deceptive because, although they appear natural, residential land uses are actually close. The flood plain creates a natural setback, screening these homes.

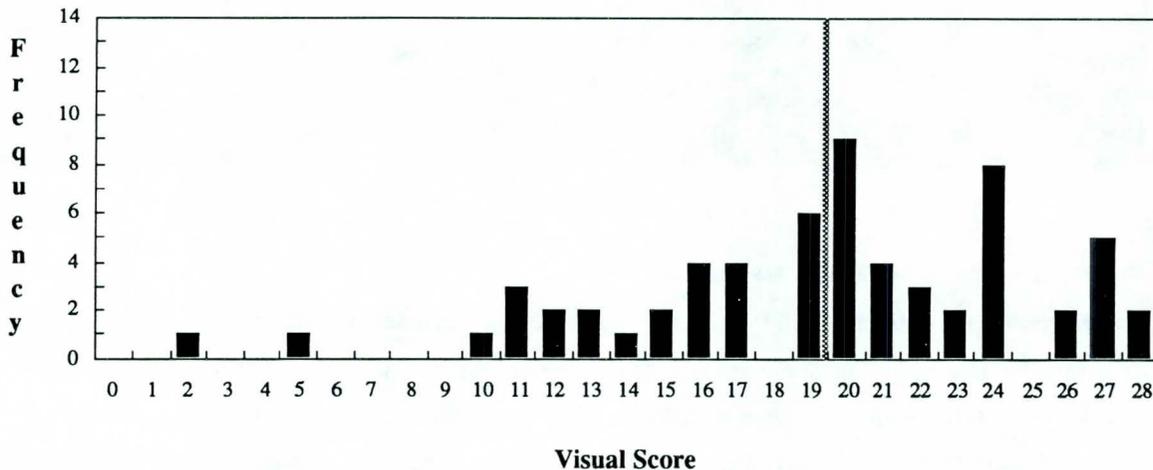
# VISUAL LANDSCAPE TYPE No. 3

## Individual Scores



----- Composite visual score = 19.4

## Scoring Distribution



----- Composite visual score = 19.4

## Scoring Statistics

Place in Rank Order:	Preference Category:	Count:	Mean:
9	Preferred	62	19.3710

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
2	28	26	0	20	20

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
5.5699	0.7074	31.0241	28.7540	0.5252	-0.7258

**Visual Landscape Type Illustration**



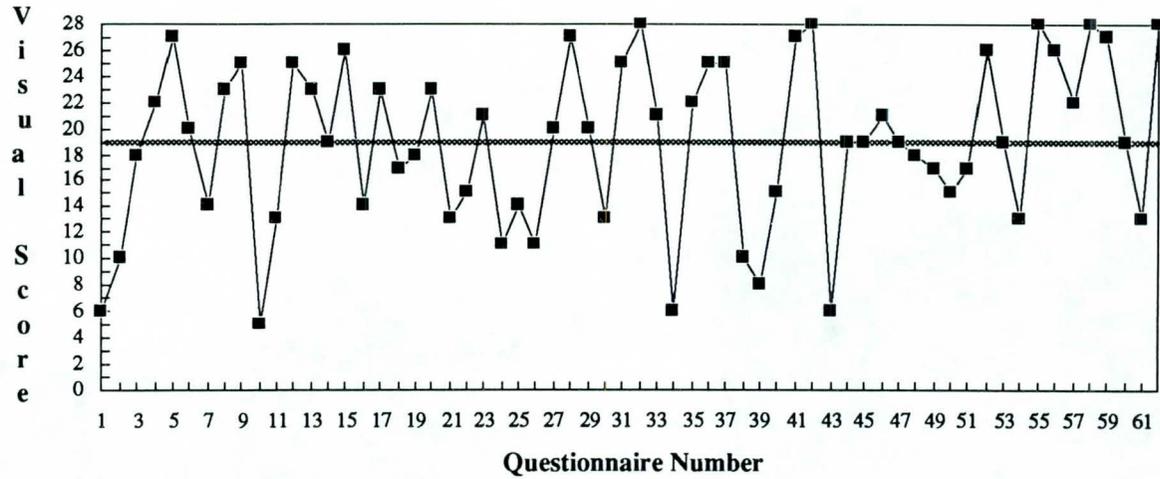
Bill Whitmore

**Visual Landscape Type Narrative**

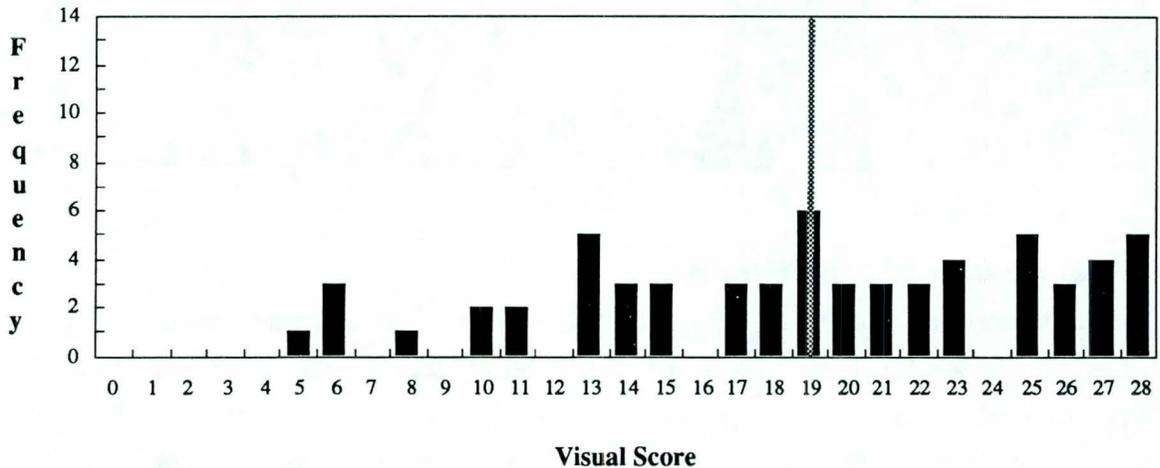
The Cut Bank with Mesquite Bosque (Type No. 3) is a low intensity, disturbed natural landscape. The disturbances include shoreline cut bank erosion. There is high contrast in form, color, and slope between the cut bank and the mesquite bosque. Vivid contrast also occurs between the flat water surface and the near vertical cut bank slope. Both the bosque and the emergent marsh vegetation along the shore have low visual definition. The shoreline vegetation is irregular and fine textured. The skyline tends to be regular and low. There is no overhanging canopy but this landscape is moderately enclosed by the landform and bosque.

**VISUAL LANDSCAPE TYPE No. 24**

**Individual Scores**



**Scoring Distribution**



**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
10	Preferred	62	18.9677

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
5	28	23	0	19	19

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.4350	0.8172	41.4088	33.9258	-0.7400	-0.3977

**Visual Landscape Type Illustration**



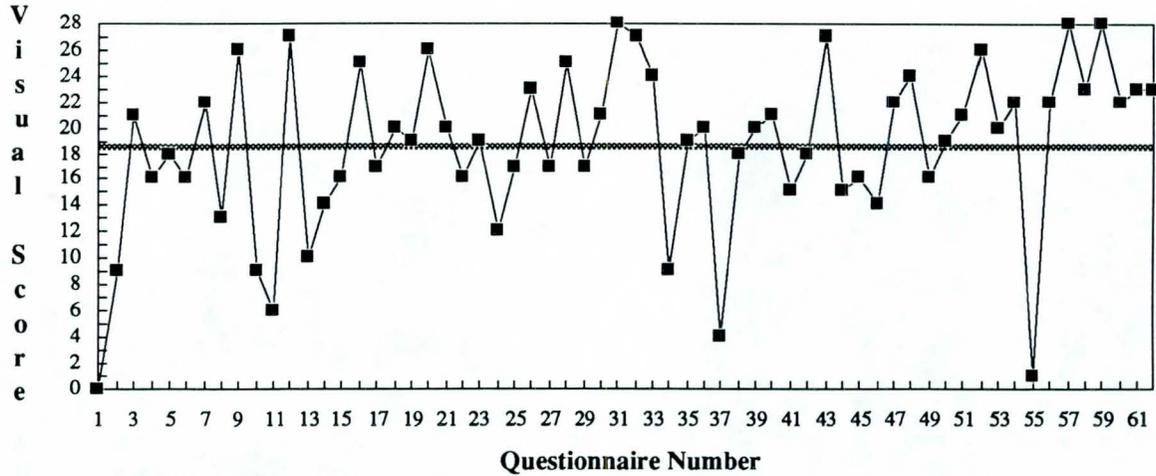
Bill Whitmore

**Visual Landscape Type Narrative**

The Terraced Cut Bank with Desert Scrub Upland (Type No. 24) is a low intensity, disturbed natural landscape. The dramatic cut banks are the main natural disturbance. These steep shorelines result in moderate enclosure. The vegetation definition is high because of the widely spaced shrubs and trees. The contrast is high because of the form, color, and texture of both the vegetation and the landform. The shoreline is straight, but the rest of the landscape elements are complexly interspersed. The surface water reflectivity is striking and mirrors the surroundings - adding to the complexity and mystery of the landscape.

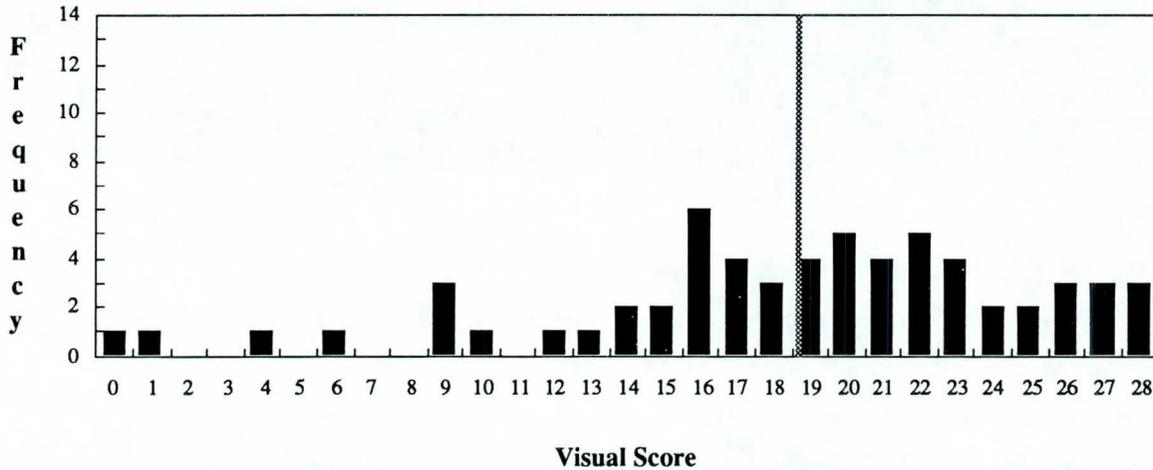
**VISUAL LANDSCAPE TYPE No. 6**

**Individual Scores**



..... Composite visual score = 18.6

**Scoring Distribution**



..... Composite visual score = 18.6

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:		
11	Preferred	62	18.5806		
Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	28	28	0	19.5	16
Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.4313	0.8168	41.3622	34.6132	0.6549	-0.8751

**Visual Landscape Type Illustration**

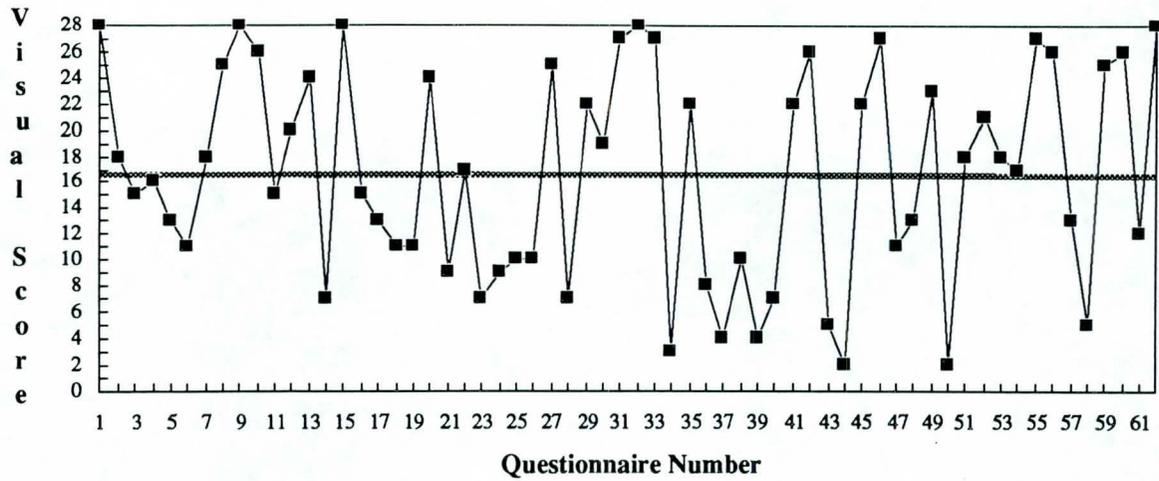
Bill Whitmore

**Visual Landscape Type Narrative**

The Rubble Diversion Dam (Type No. 6) may be considered either a high intensity, disturbed natural landscape or a low density, cultural landscape. The major disturbances include the rubble diversion dams and houses on the surrounding hills. These dams are used to divert water to adjacent agricultural and/or urban uses. The vegetation definition is low but it contrasts moderately with the surroundings. The major contrasts result from the textured diversion dams, as well as the vivid green of the foreground marsh and Verde Formation sandstone that forms a middleground ridge. The water is homogeneous and open behind the rubble dam, but it changes at the dam. The skyline is regular but the shoreline is irregular. The space is moderately open with little sense of mystery unless one is in a canoe before the dam and does not know the drop in the stream ahead.

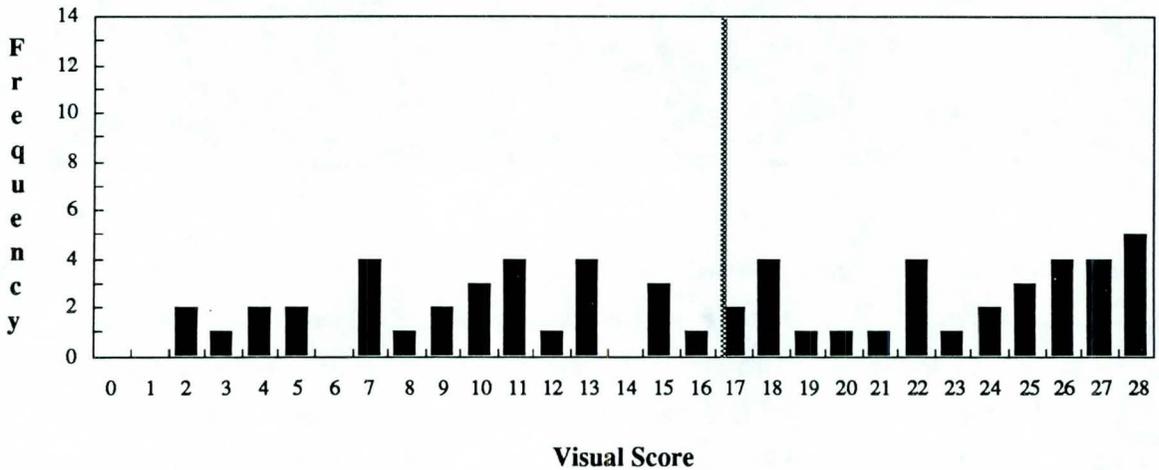
**VISUAL LANDSCAPE TYPE No. 25**

**Individual Scores**



----- Composite visual score = 16.6

**Scoring Distribution**



----- Composite visual score = 16.6

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:		
12	No Clear Preference	62	16.6129		
Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
2	28	26	0	17	28
Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
8.1509	1.0352	66.4379	49.0639	-1.2717	-0.1243

**Visual Landscape Type Illustration**



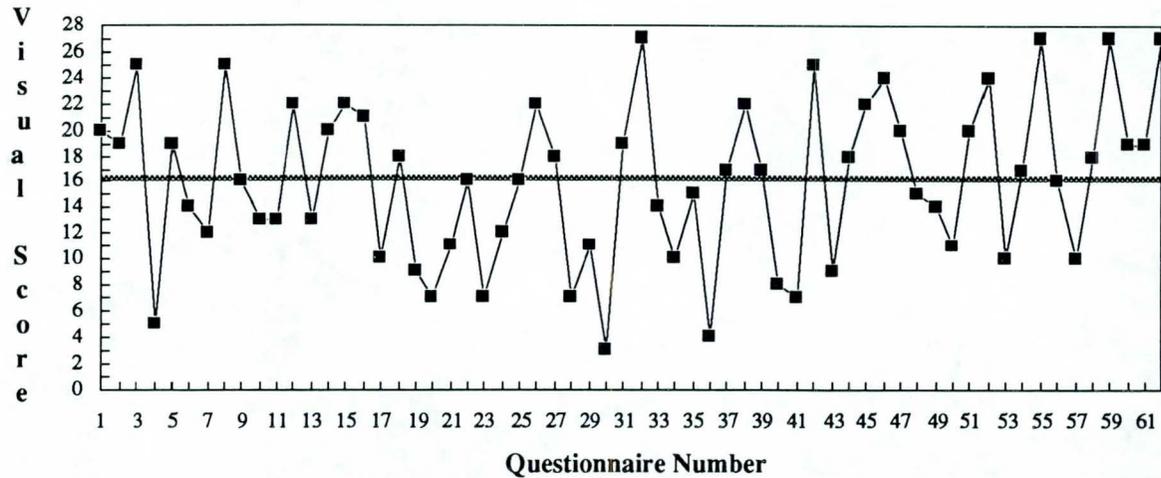
Bill Whitmore

**Visual Landscape Type Narrative**

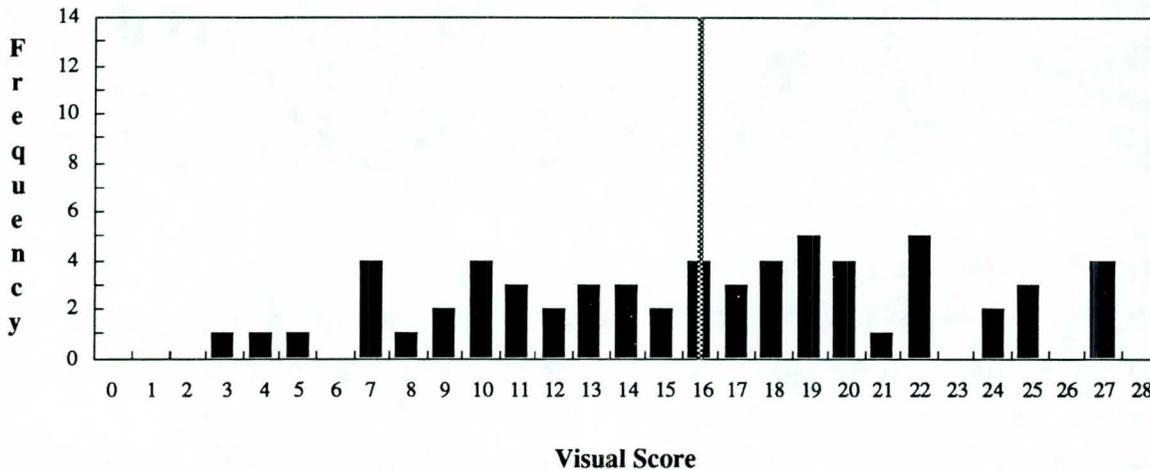
The Dead Cottonwood Stand (Type No. 25) may be considered either a high intensity, disturbed natural landscape or a low density, cultural landscape. The natural disturbances, snags and cut banks, are a result of flooding. The major feature is a whole stand of dead cottonwood trees, which were killed by an undetermined disturbance. Hillside housing, road cuts, and utility poles are the major cultural disturbances. The vegetative legibility is high because it is easy to see the branching pattern of the dead cottonwoods and the surrounding vegetation is sparse. The contrast is extremely high because of the stark white cottonwoods, the water reflectivity, and the surrounding slope and cliff formation. The water is homogeneously open, but the shoreline is complex because of the emergent marsh. The trees form a dramatic silhouette skyline. The landscape is moderately enclosed with two types of mystery. One form is created by the river meander and the other mystery is what happened to cause the death of the cottonwoods.

# VISUAL LANDSCAPE TYPE No. 1

## Individual Scores



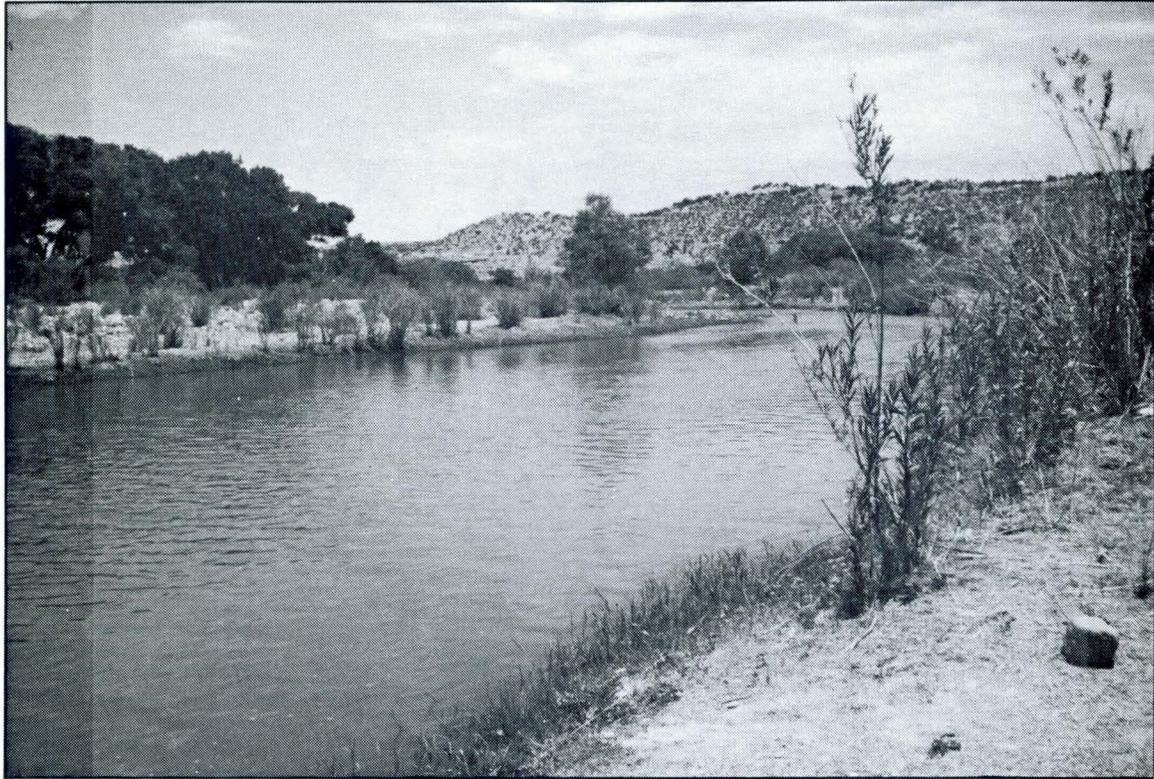
## Scoring Distribution



## Scoring Statistics

Place in Rank Order:	Preference Category:	Count:	Mean:		
13	No Clear Preference	62	16.0968		
Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
3	27	24	0	16.5	*
Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.2717	0.7965	39.3347	38.9627	-0.8205	-0.0921

**Visual Landscape Type Illustration**



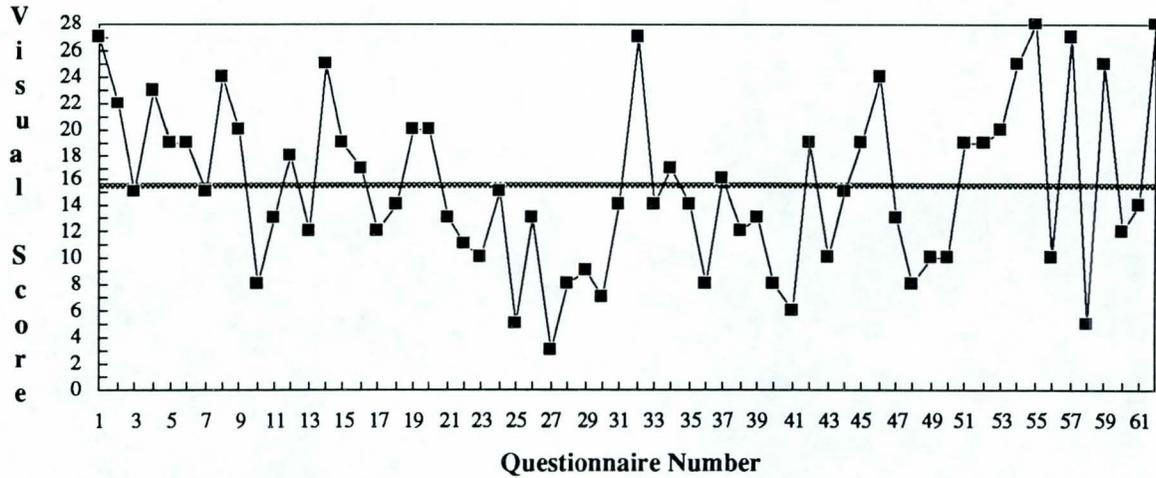
Bill Whitmore

**Visual Landscape Type Narrative**

The Channel/Point Bars with Desert Shrub Upland (Type No. 1) are a low intensity, disturbed natural landscape. The human induced disturbances include power lines, road cuts on adjacent hillsides, and a railroad track. The landscape is comprised of gravel, point, and channel bars with upland desert scrub vegetation. The legibility of the vegetation is high because one can see the structure of plants along the river banks. Limited contrast exists among landscape elements (vegetation, water, and landform). The vegetation and water pattern is moderately interspersed. The edge of the shoreline is smooth. The space-defining elements create moderately open views. There is great mystery in this landscape type along the river.

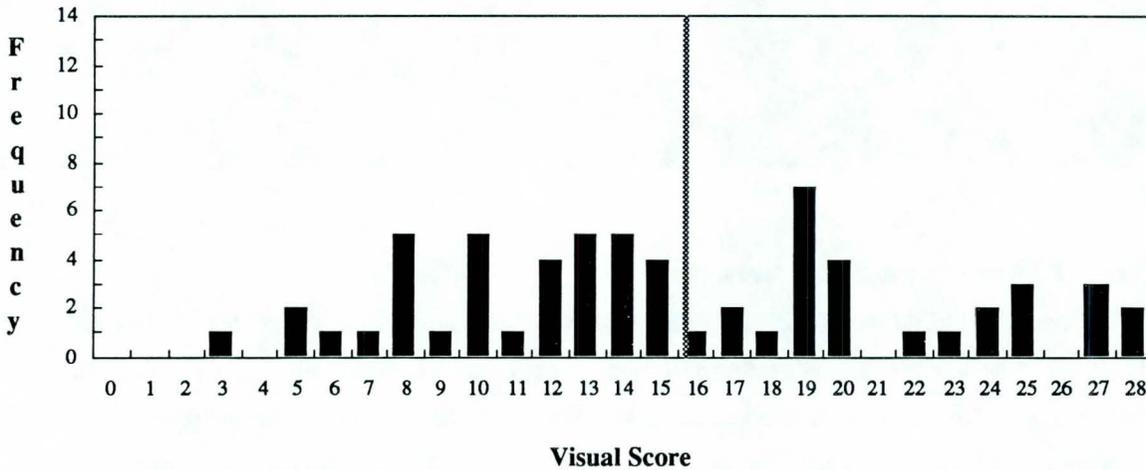
**VISUAL LANDSCAPE TYPE No. 21**

**Individual Scores**



----- Composite visual score = 15.6

**Scoring Distribution**



----- Composite visual score = 15.6

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
14	No Clear Preference	62	15.5645

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
3	28	25	0	14.5	19

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.4366	0.8175	41.4302	41.3545	-0.7838	0.2386

**Visual Landscape Type Illustration**



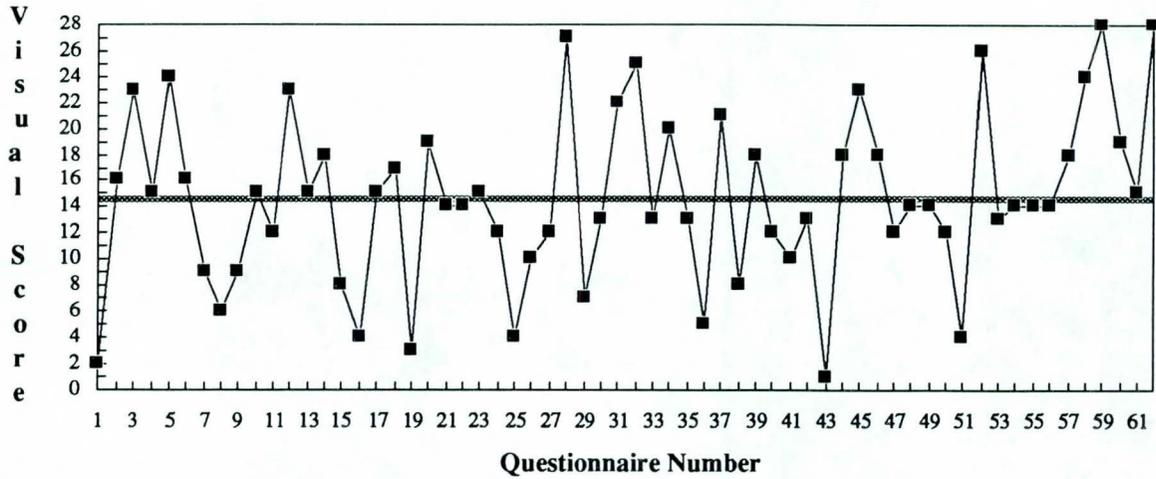
Bill Whitmore

**Visual Landscape Type Narrative**

The Emergent Marsh Flood Plain (Type No. 21) is a low intensity, disturbed natural landscape. The cultural disturbances include the occasional utility pole, shoreline junk, and glimpses of hillside houses. The landscape has resulted from the natural disturbance of flooding. The shoreline trees are so far back they appear to be tangled masses of vegetation. This situation results in low vegetative legibility. The major contrast in these landscapes is the reflectiveness of the water. The landform clarity is low because of the flat terrain. The shoreline vegetation is complex because of the varying degrees of intrusion into the open water. The landscape is open but has mystery because the meandering river limits longitudinal views.

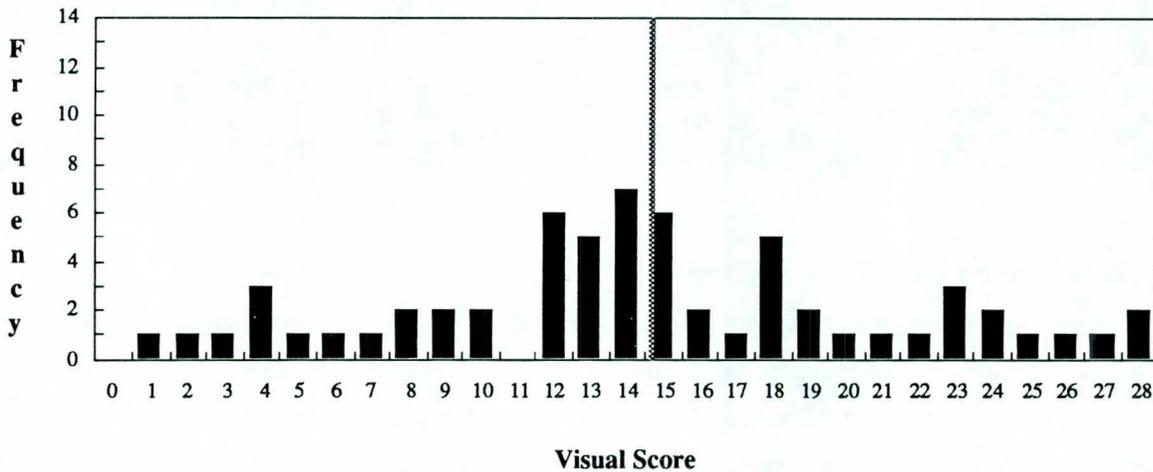
**VISUAL LANDSCAPE TYPE No. 20**

**Individual Scores**



..... Composite visual score = 14.6

**Scoring Distribution**



..... Composite visual score = 14.6

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:		
15	No Clear Preference	62	14.6129		
Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
1	28	27	0	14	14
Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.6019	0.8384	43.5854	45.1787	-0.4226	0.0583

**Visual Landscape Type Illustration**



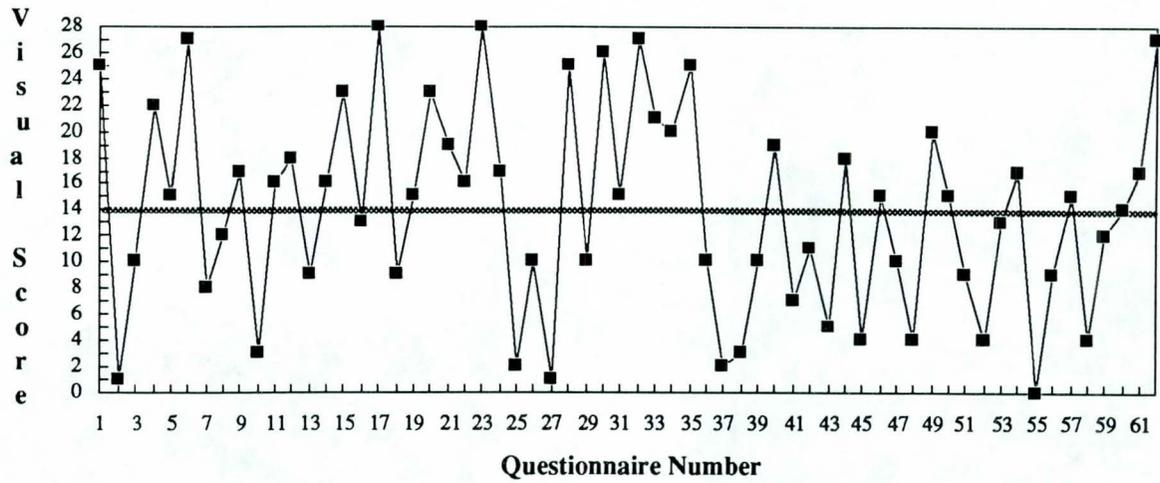
Bill Whitmore

**Visual Landscape Type Narrative**

The Scrub-Shrub Bank with Desert Scrub Upland (Type No. 20) is a low intensity, disturbed natural landscape with the major cultural modifications being road cuts and power lines. Erosion is a natural disturbance, resulting in sloughing shorelines. The vegetation definition is high because the scrub-shrub vegetation is sparse. The stream is slow moving and as reflective as muddy water can be. The side slopes are steep creating a contrasting landform to the flat stream surface. The white limestone bands in the surrounding hillsides are evident. The overall contrast is not great because the tones of the water, landform, and vegetation are similar. The shoreline is rather complex and irregular because of the interplay between the steep slopes and sparse shrubs. The skyline is high and the valley is steep, resulting in a moderately enclosed landscape.

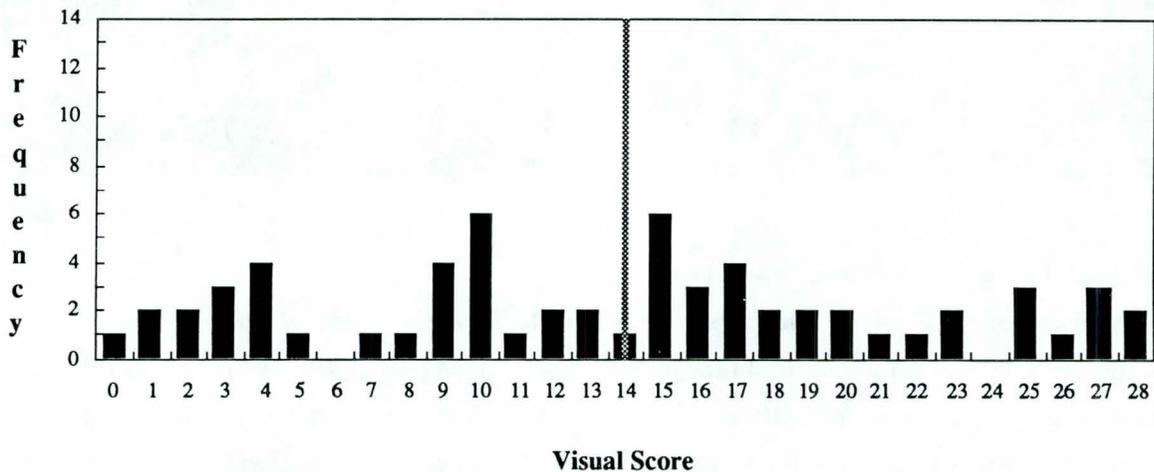
**VISUAL LANDSCAPE TYPE No. 27**

**Individual Scores**



..... Composite visual score = 14.0

**Scoring Distribution**



..... Composite visual score = 14.0

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:		
16	No Clear Preference	62	13.9677		
Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	28	28	0	15	*
Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
7.8238	0.9936	61.2121	56.0134	-0.8990	0.0673

**Visual Landscape Type Illustration**



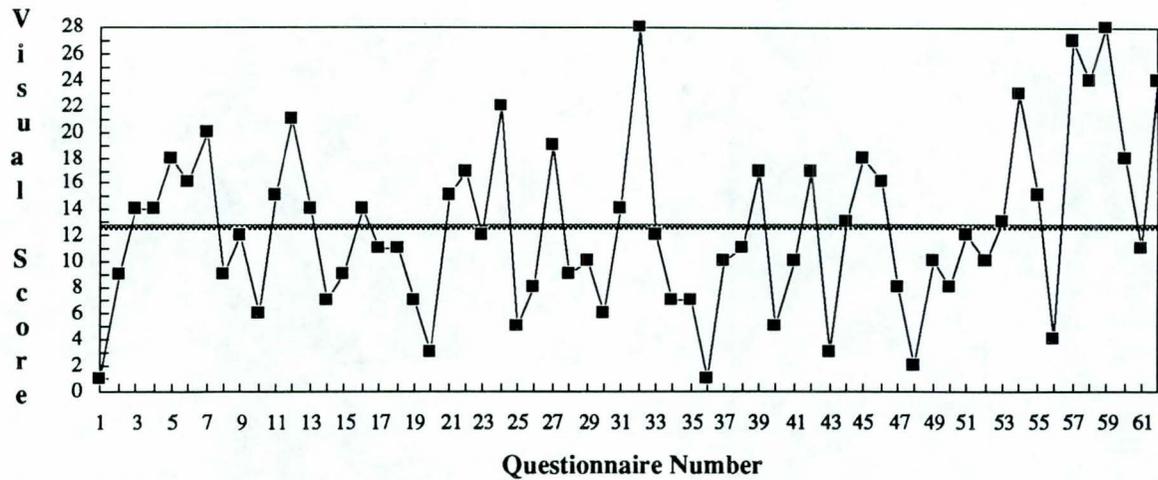
Ted Cook

**Visual Landscape Type Narrative**

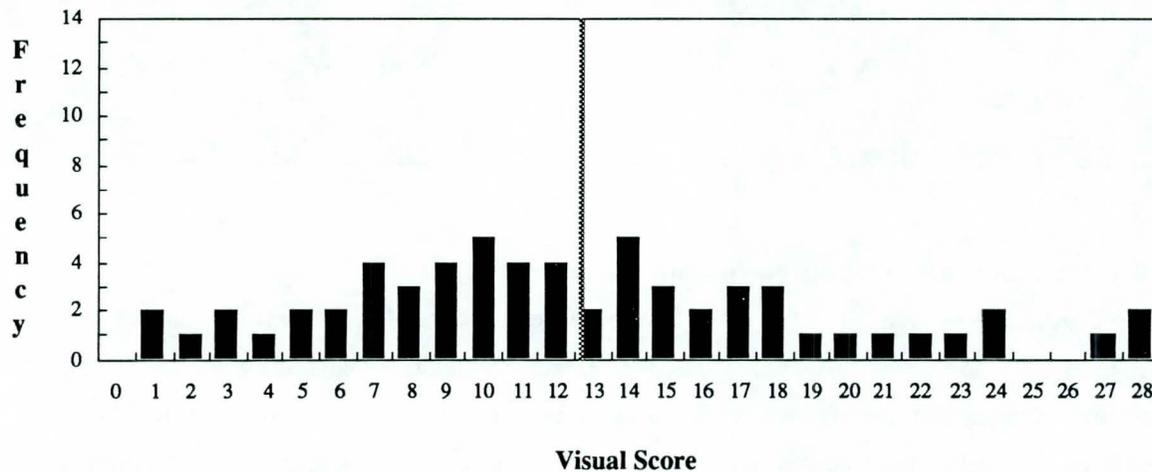
The Cultivated Riverside Lawns (Type No. 27) are low density, cultural landscapes. The cultural disturbance is the cultivated riverside lawns. The vegetation legibility is high because it is manipulated through trimming and mowing. It is a suburban lawn imposed upon a natural setting. There is high contrast as a result of the pattern of bright green emergent marsh, brown snags, verdant lawns, and dark trees. The water is interspersed because of emergent marsh and gravel bars. The shoreline is rather complex and irregular. The landscape is moderately enclosed by the skyline of the tree tops.

## VISUAL LANDSCAPE TYPE No.23

### Individual Scores



### Scoring Distribution



### Scoring Statistics

Place in Rank Order:	Preference Category:	Count:	Mean:
17	No Clear Preference	62	12.5806

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
1	28	27	0	12	*

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.5651	0.8338	43.0999	52.1838	-0.2098	0.4688

**Visual Landscape Type Illustration**



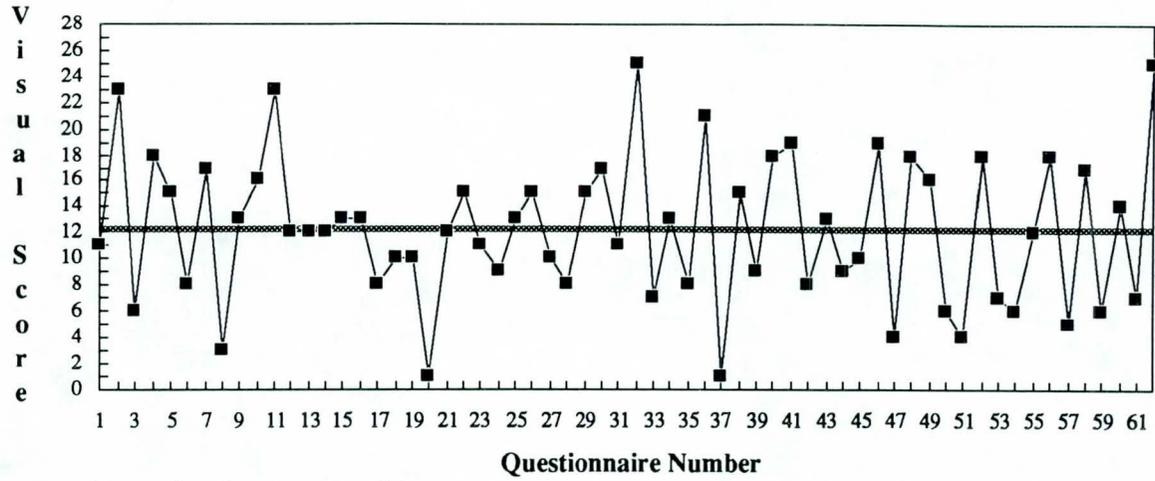
Bill Whitmore

**Visual Landscape Type Narrative**

The Hillside Residential Homes (Type No. 23) are medium density, cultural landscapes because of visible hillside single-family houses. The residences are close to the river exposing satellite dishes, parked cars, utility lines, and human noise. The legibility of the shoreline vegetation is low with tangled, closely spaced trees and shrubs. The river is slow moving and wide. The composite landscape is mundane because of the lack of contrast and complexity as well as the regular skyline and shoreline. The major contrast is the juxtaposition of the houses on the hills above the river.

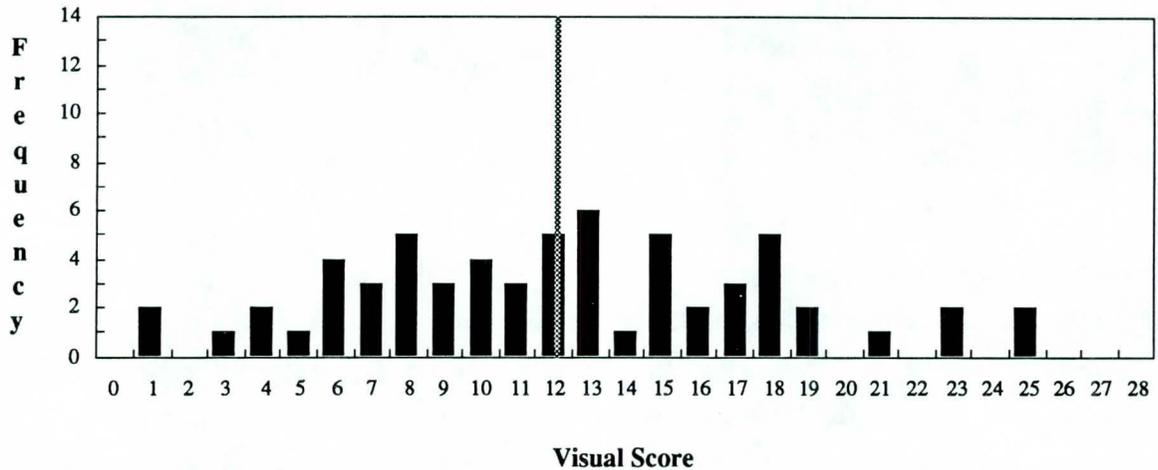
**VISUAL LANDSCAPE TYPE No. 11**

**Individual Scores**



----- Composite visual score = 12.2

**Scoring Distribution**



----- Composite visual score = 12.2

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:		
18	No Clear Preference	62	12.2258		
Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
1	25	24	0	12	13
Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
5.6436	0.7167	31.8498	46.1611	-0.3828	0.2256

**Visual Landscape Type Illustration**

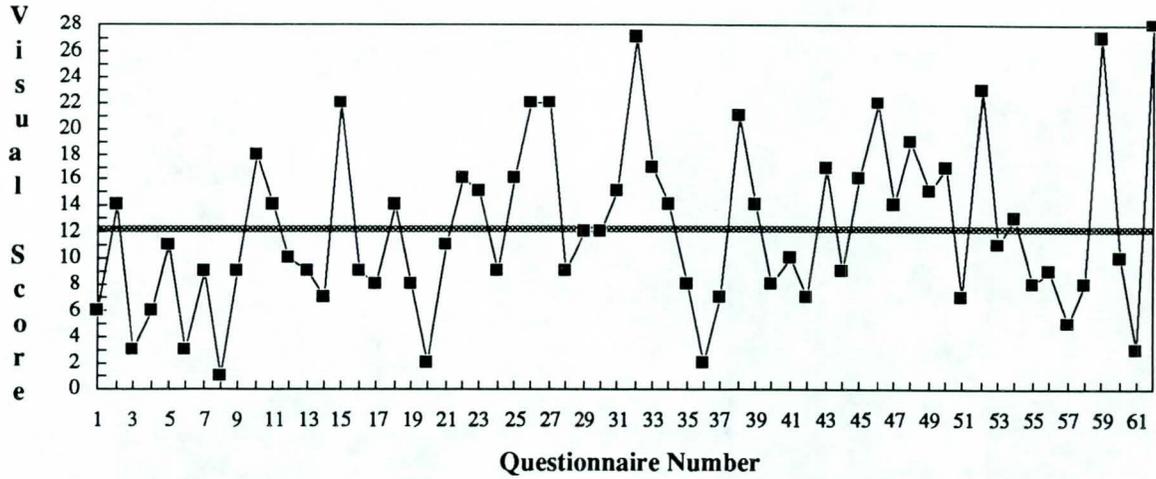
Bill Whitmore

**Visual Landscape Type Narrative**

The Mini-Farm (Type No. 11) is a low-density, cultural landscape. The major modifications are related to small-scale farming: houses, sheds, rock walls, fences, and bank stabilization facilities. These mini-farms are situated in relatively flat, lowland scrub areas. The vegetative legibility is very high because the cottonwood-willow gallery and the upland trees are well spaced, so one can see through the branches. However, the legibility of water and landform is less because of the flat topography. The river tends to be narrow through these areas with little shoreline complexity as a result of channel bars. These mini-farms are not always situated right along the river but are often set back some distance. They are, however, frequently visible from the river. Because of wide spacing among the trees, there is a fair amount of skyline complexity.

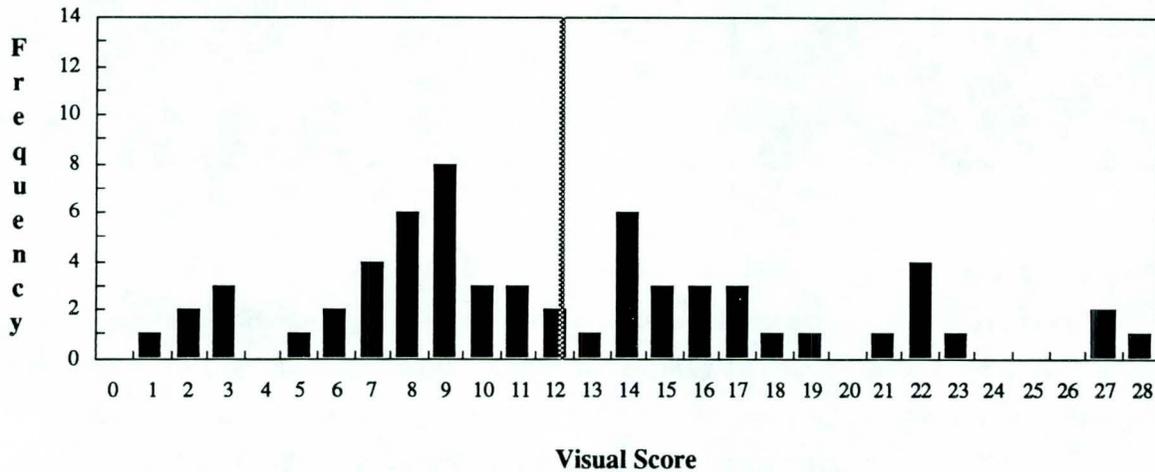
**VISUAL LANDSCAPE TYPE No. 13**

**Individual Scores**



----- Composite visual score = 12.2

**Scoring Distribution**



----- Composite visual score = 12.2

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
19	No Clear Preference	62	12.2258

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
1	28	27	0	11	9

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.4438	0.8184	41.5219	52.7062	-0.1993	0.5575

**Visual Landscape Type Illustration**



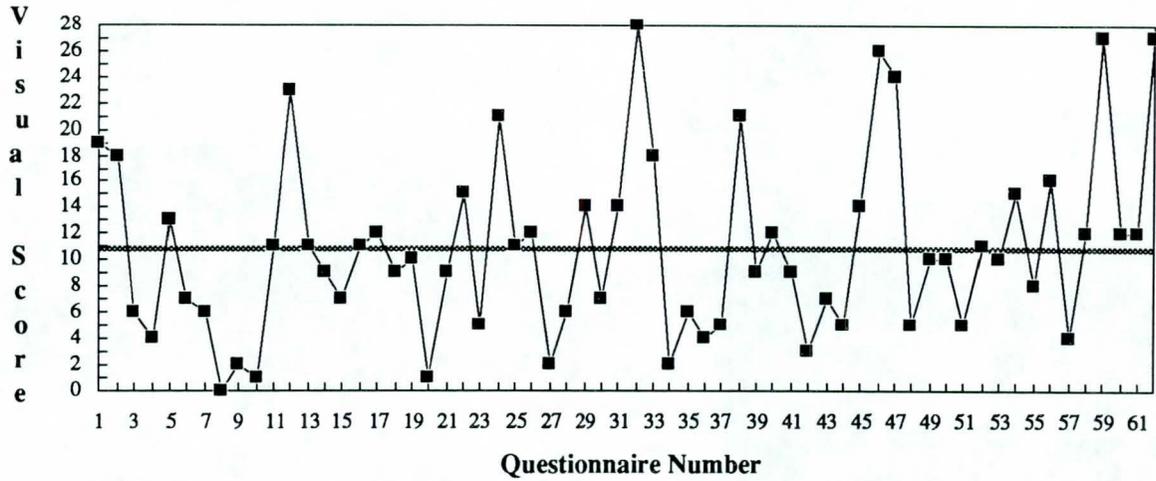
Bill Whitmore

**Visual Landscape Type Narrative**

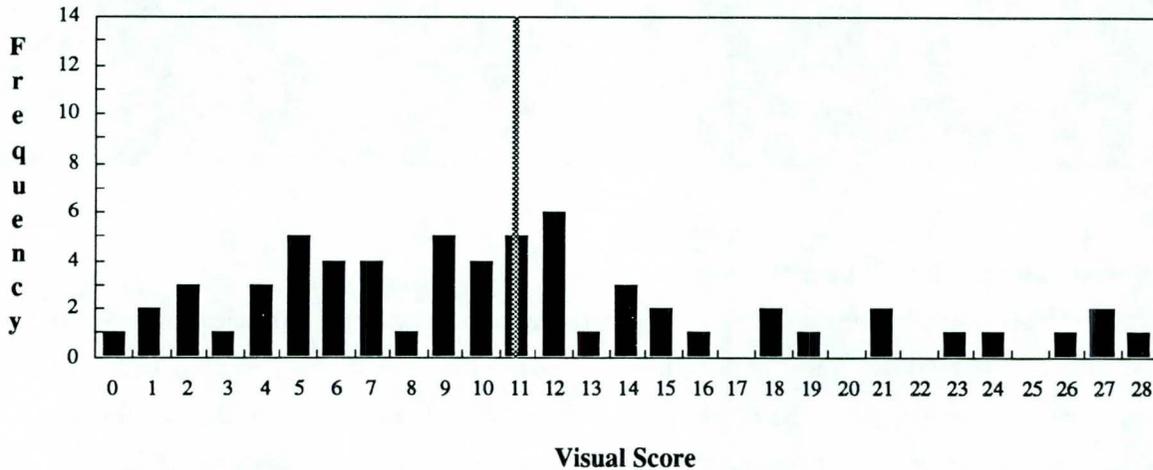
The Mobile Home Park (Type No. 13) is a medium density, cultural landscape. The medium density is relative to the overall low intensity of the settlement pattern in the Verde Valley. The major cultural modification is mobile homes. The vegetation definition and contrast are low because there are few big trees. The landform along the river and on the upland terrace, where the mobile homes are located, is relatively flat. However, in the background there are undulating hills with colors and textures characteristic of the omnipresent Verde Formation. The river through this landscape is homogeneous open water with straight shorelines as a result of channel bar formations. The skyline is fairly low and regular in height and the space is open with little enclosure. The reflection off the aluminum siding of the mobile homes creates some contrast, as one can see a narrow white band in the middleground.

**VISUAL LANDSCAPE TYPE No. 17**

**Individual Scores**



**Scoring Distribution**



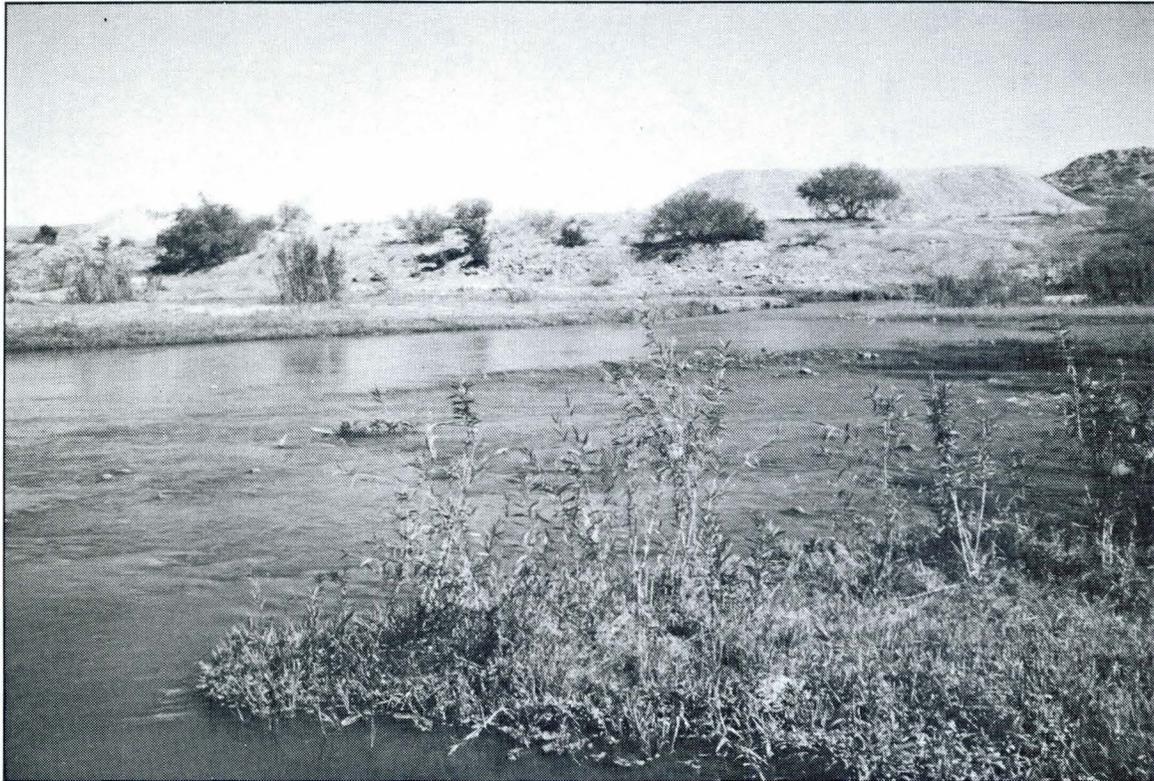
**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
20	No Clear Preference	62	10.8548

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	28	28	0	10	12

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.9491	0.8825	48.2901	64.0185	0.0702	0.8012

**Visual Landscape Type Illustration**



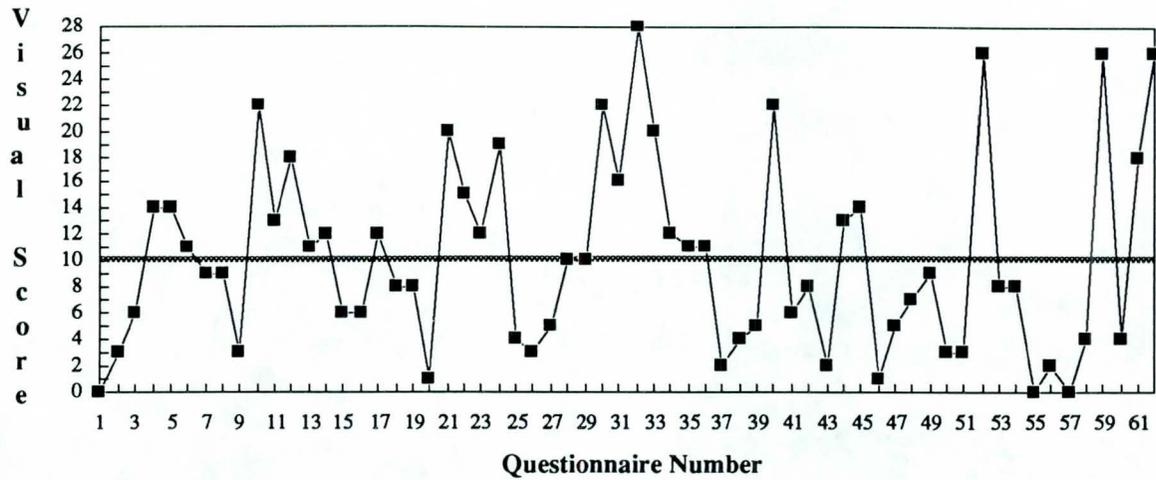
Bill Whitmore

**Visual Landscape Type Narrative**

The Aggregate Stock Piles (Type No. 17) are highly disturbed, natural landscapes. The major disturbance is the aggregate stock piles. The associated roads are deeply rutted because of heavy equipment use. Many trees have been removed for the stock piles, but a few remain, resulting in a high vegetative legibility. The contrast of the aggregate piles with their surroundings is low because of similar color. Limited contrast exists among landscape elements (vegetation, water, and landform). The vegetation and water pattern is moderately interspersed. The edge of the shoreline is smooth. The space-defining elements create moderately open views.

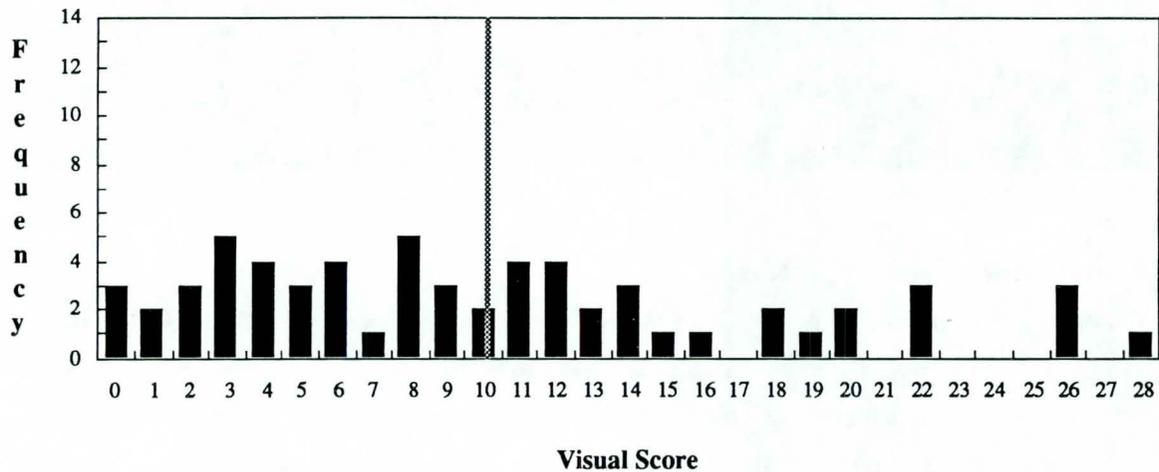
**VISUAL LANDSCAPE TYPE No. 29**

**Individual Scores**



----- Composite visual score = 10.2

**Scoring Distribution**



----- Composite visual score = 10.2

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
21	No Clear Preference	62	10.1613

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	28	28	0	9	*

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
7.3467	0.9330	53.9736	72.3006	-0.3360	0.7008

**Visual Landscape Type Illustration**



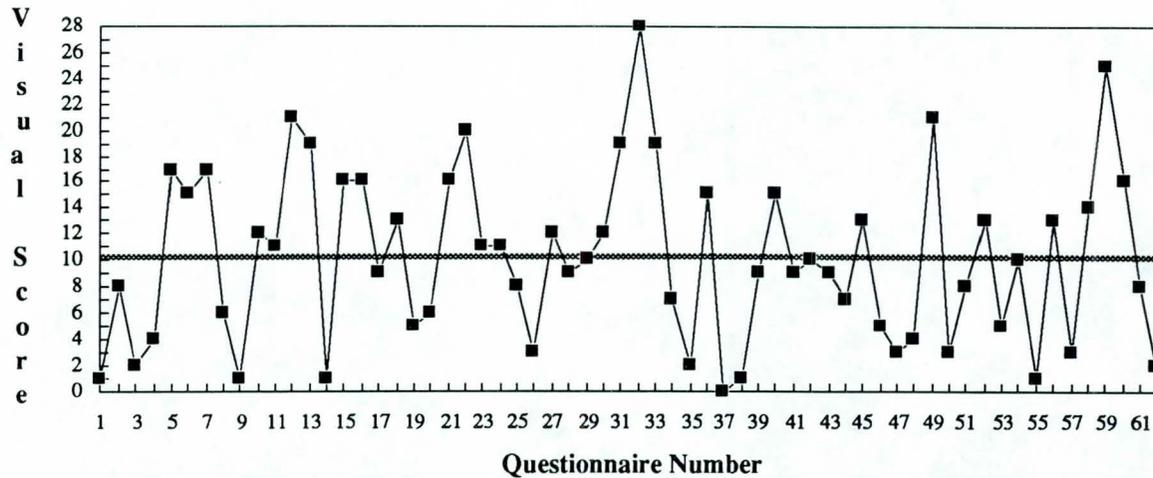
Ted Cook

**Visual Type Narrative**

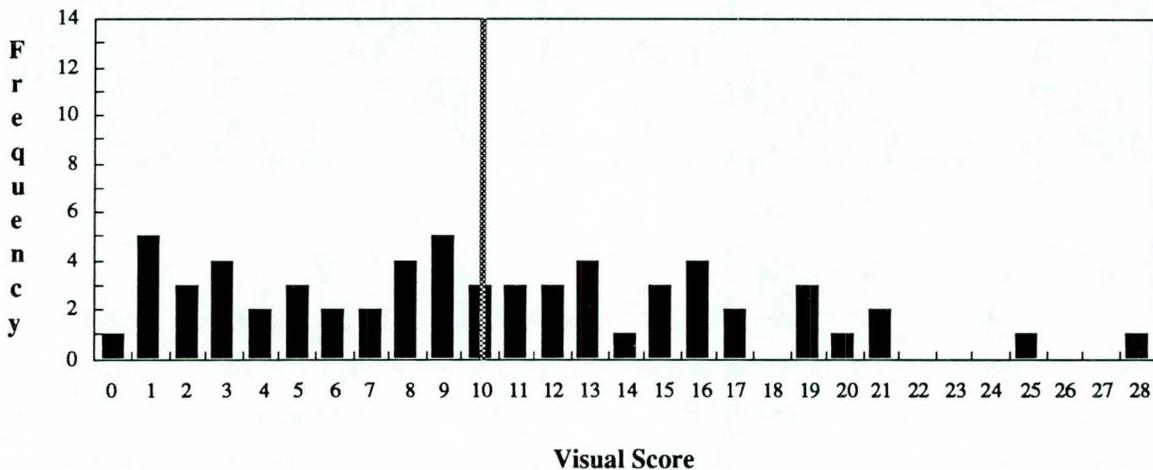
The River Bank Stabilization (Type No. 29) is a high intensity, disturbed natural landscape. The major disturbance is the river bank stabilization, usually put in place to protect some nearby land use. The forms of stabilization are several, including tied utility poles, junked automobiles, riprap, and long striae of cable. The density of plants along the shore is thin. Strong contrasts exist between soil and stabilization material, soil and plants, soil and water, and water and emergent marsh. The shoreline is straight and channelized, yet visually complex.

**VISUAL LANDSCAPE TYPE No. 22**

**Individual Scores**



**Scoring Distribution**



**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
22	No Clear Preference	62	10.1452

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	28	28	0	9.5	*

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.5633	0.8335	43.0769	64.6939	-0.3753	0.4359

**Visual Landscape Type Illustration**



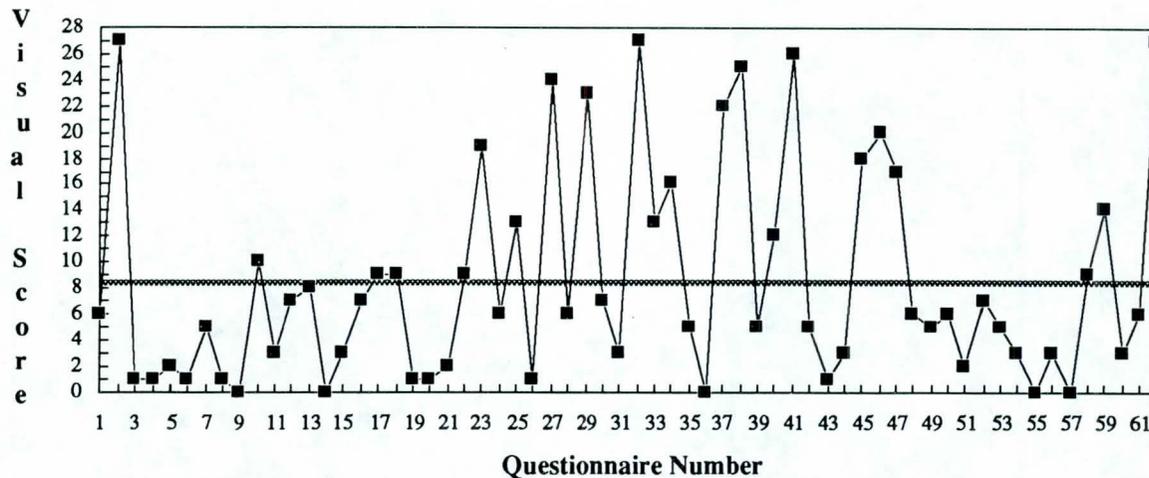
Bill Whitmore

**Visual Landscape Type Narrative**

The Remnant At-Grade River Crossing (Type No. 22) is a high intensity, disturbed natural landscape. The disturbances include the remnant at-grade river crossing, the antique car bodies, the old pump house, some power lines, and assorted debris. Flooding and fallen trees have created snags in the river. The surrounding landform and vegetation is scrub-shrub bank with desert scrub uplands. The vegetation is sparse with high definition. The side slopes are steep, creating a contrasting landform to the flat stream surface. White bands are evident in the surrounding limestone hillsides. Because the overall tones of the water, landform, and vegetation are similar, the overall natural contrast is low. However, the disturbances do contrast to the natural surroundings.

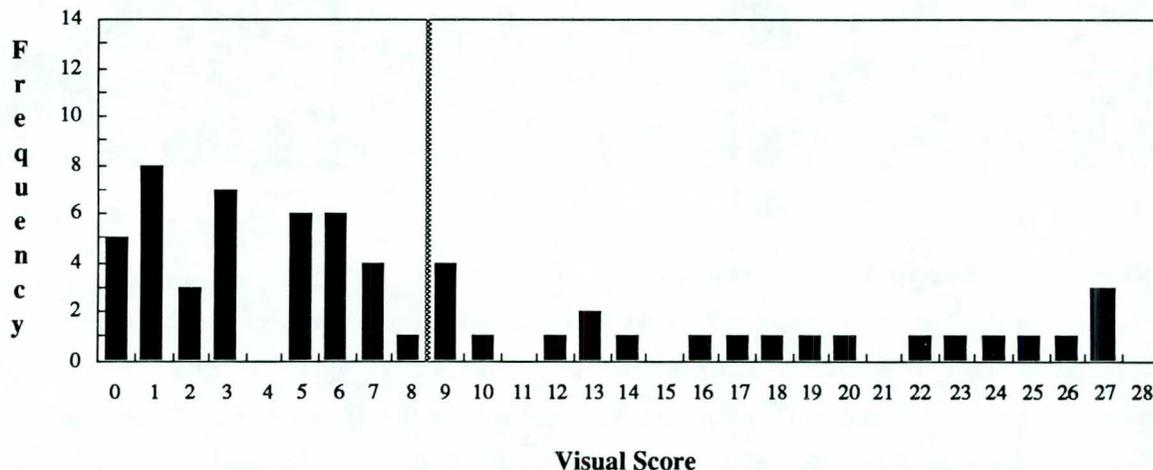
**VISUAL LANDSCAPE TYPE No. 14**

**Individual Scores**



----- Composite visual score = 8.5

**Scoring Distribution**



----- Composite visual score = 8.5

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
23	No Clear Preference	62	8.4839

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	27	27	0	6	1

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
8.1537	1.0355	66.4833	96.1086	-0.1009	1.0501

**Visual Landscape Type Illustration**



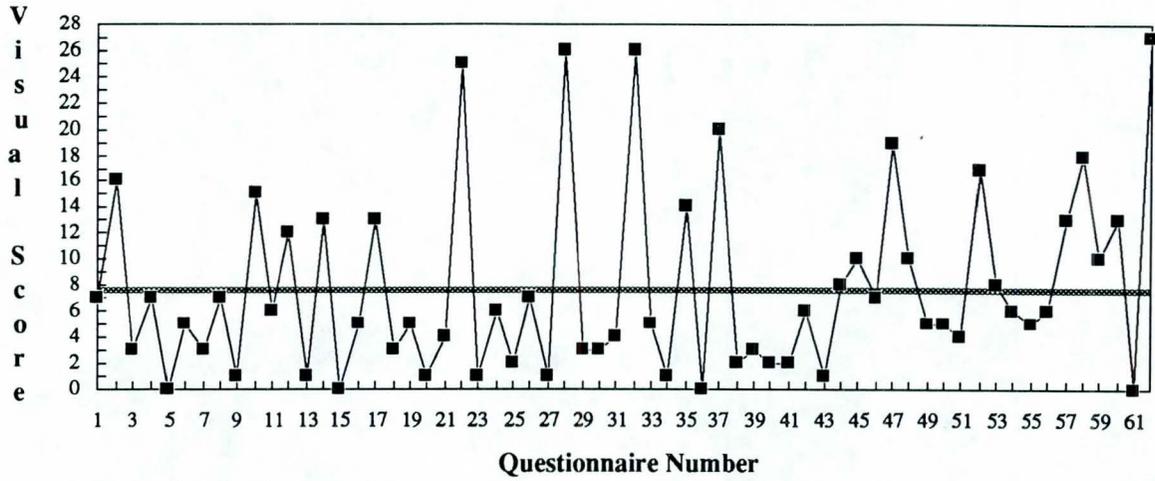
Bill Whitmore

**Visual Landscape Type Narrative**

The Abandoned Sand and Gravel Mine Pit (Type No. 14) is a high intensity, disturbed natural landscape. The disturbance is a result of aggregate mining activities, old heavy equipment, and dilapidated sheds. Generally, there is little vegetation at the flat mining sites. Sites abandoned some time ago have been revegetated, but recently abandoned areas have a stark open quality. There tends to be high contrast created by the surrounding dark green trees, the bright tan soils, and the still blue water surface. The shorelines are regular and channelized. The skylines are low but irregular. The landscapes are moderately open. The water is inviting and good for swimming.

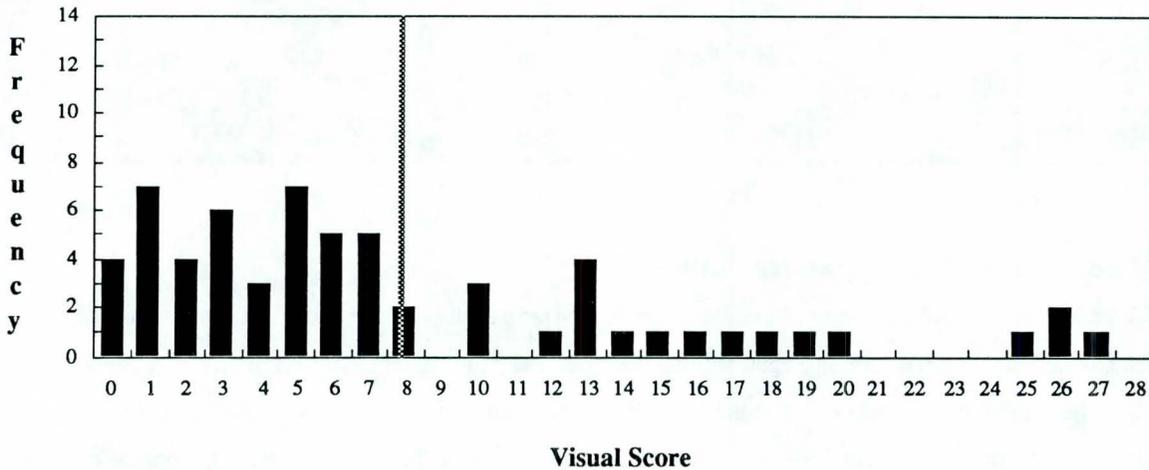
**VISUAL LANDSCAPE TYPE No. 28**

**Individual Scores**



..... Composite visual score = 7.7

**Scoring Distribution**



..... Composite visual score = 7.7

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
24	Least Preferred	62	7.7097

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	27	27	0	5.5	*

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
7.0650	0.8973	49.9143	91.6382	0.7357	1.2208

**Visual Landscape Type Illustration**



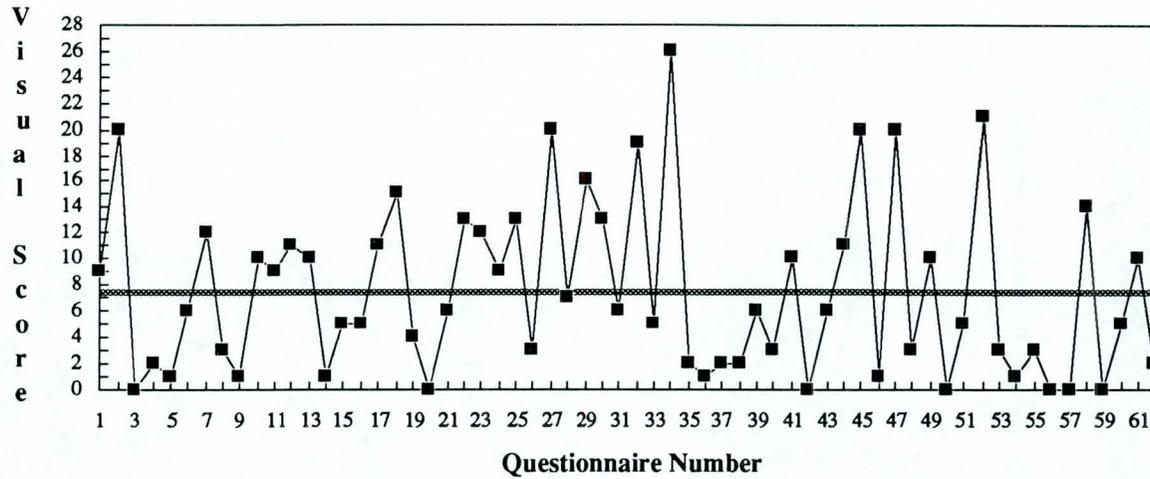
Ted Cook

**Visual Landscape Type Narrative**

The Above-Grade Bridge (Type No. 28) is a medium density, cultural landscape. The major modification is above-grade bridges. There are many trees along the banks, which have been stabilized for erosion control. There is a lush, interspersed vegetative pattern because of the gravel bars near the bridges. The bridge contrasts both in color and in form with its surroundings. The river narrows at the bridges resulting in moderate enclosure and some mystery.

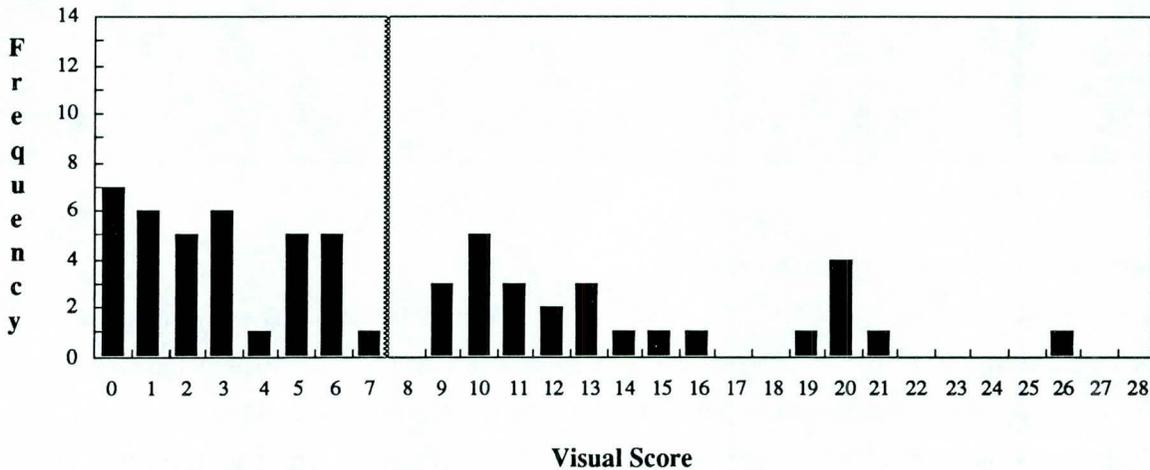
**VISUAL LANDSCAPE TYPE No. 10**

**Individual Scores**



----- Composite visual score = 7.5

**Scoring Distribution**

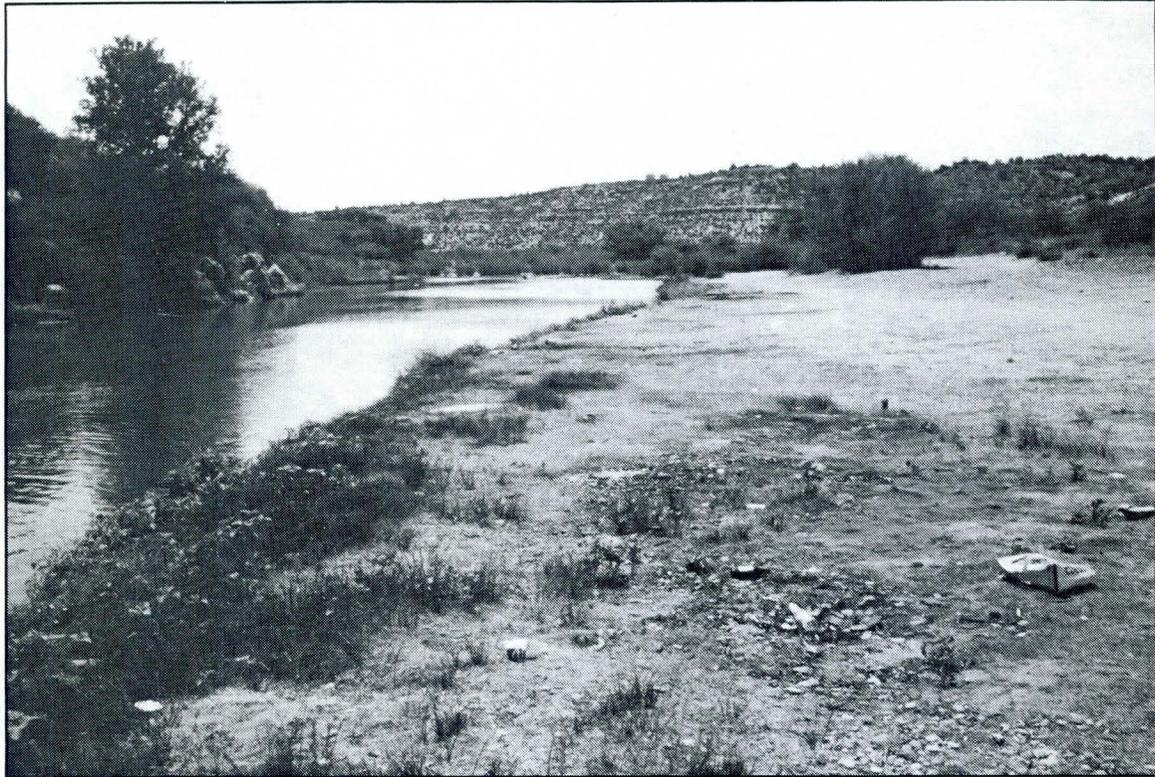


----- Composite visual score = 7.5

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:		
25	Least Preferred	62	7.4839		
Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	26	26	0	6	0
Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.5705	0.8345	43.1719	87.7959	-0.1296	0.8357

**Visual Landscape Type Illustration**



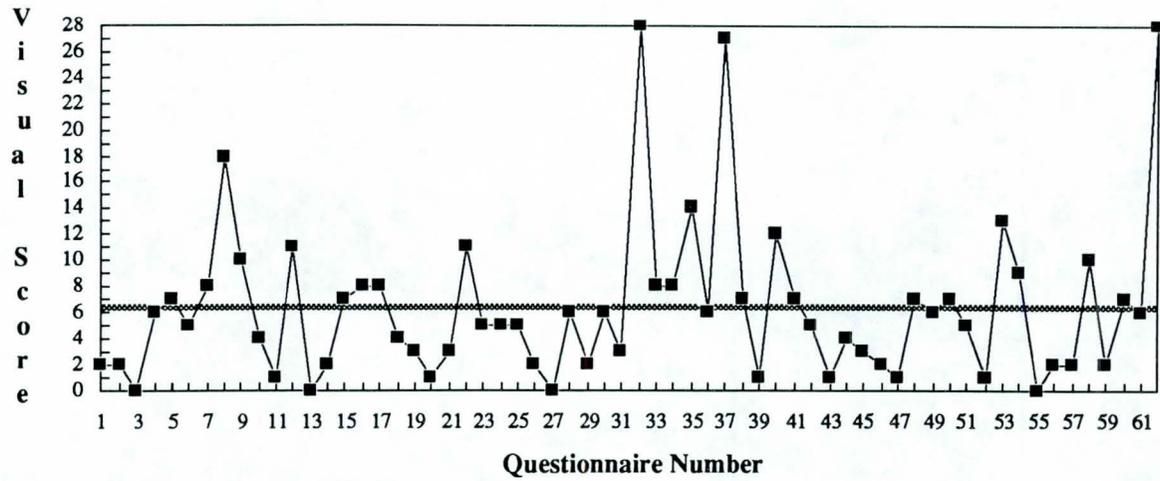
Bill Whitmore

**Visual Landscape Type Narrative**

Day Use Recreation (Type No. 10) is a highly disturbed natural landscape. These places are used for various short duration recreational activities like picnicking, swimming, late-night partying, four-wheeling, and camping. These places vary in terms of vegetation, landform, and stream channel characteristics. These landscapes have similar characteristics as a result of human use: vegetation is sparse or denuded; multiple, intermittent roadways and pathways cut across the terrain; and banks are somewhat eroded. As a result, these places contrast with the bucolic quality of the surroundings. There is little enclosure because of the lack of space-defining vegetation in the area. Often these areas have one large cottonwood tree with a rope swing.

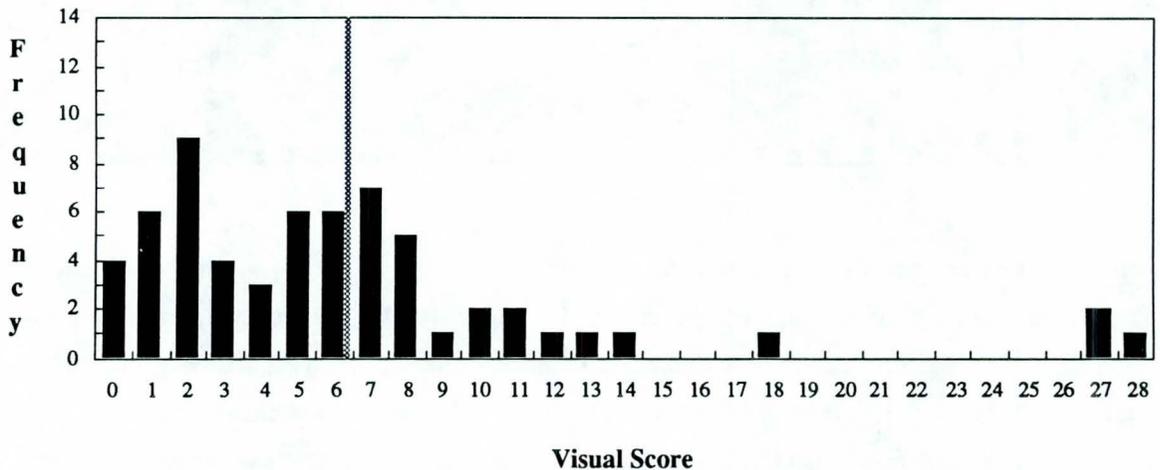
**VISUAL LANDSCAPE TYPE No. 16**

**Individual Scores**



----- Composite visual score = 6.4

**Scoring Distribution**



----- Composite visual score = 6.4

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
26	Least Preferred	62	6.3548

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	28	28	0	5	2

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
6.1460	0.7805	37.7737	96.7142	4.7321	2.0662

**Visual Landscape Type Illustration**



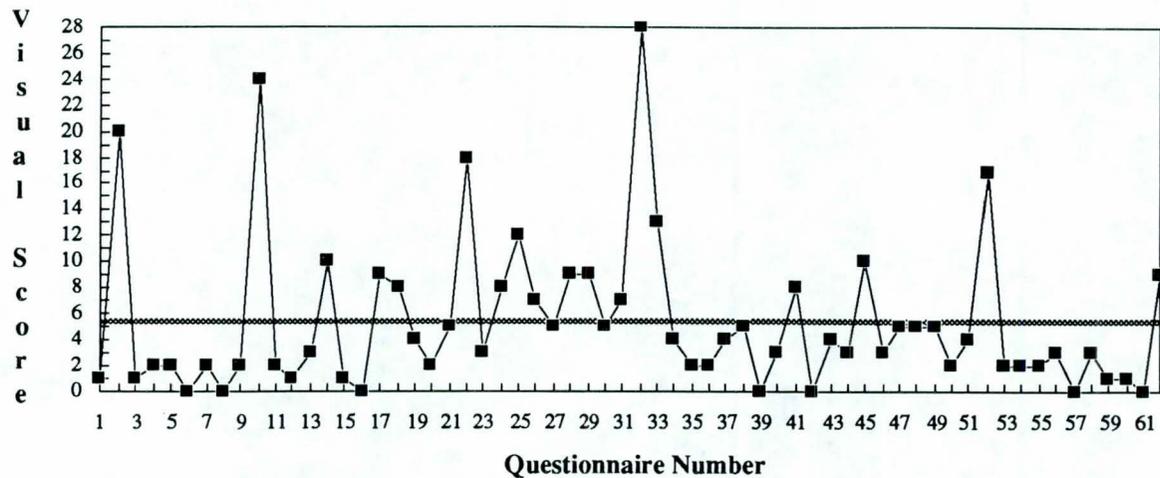
Bill Whitmore

**Visual Landscape Type Narrative**

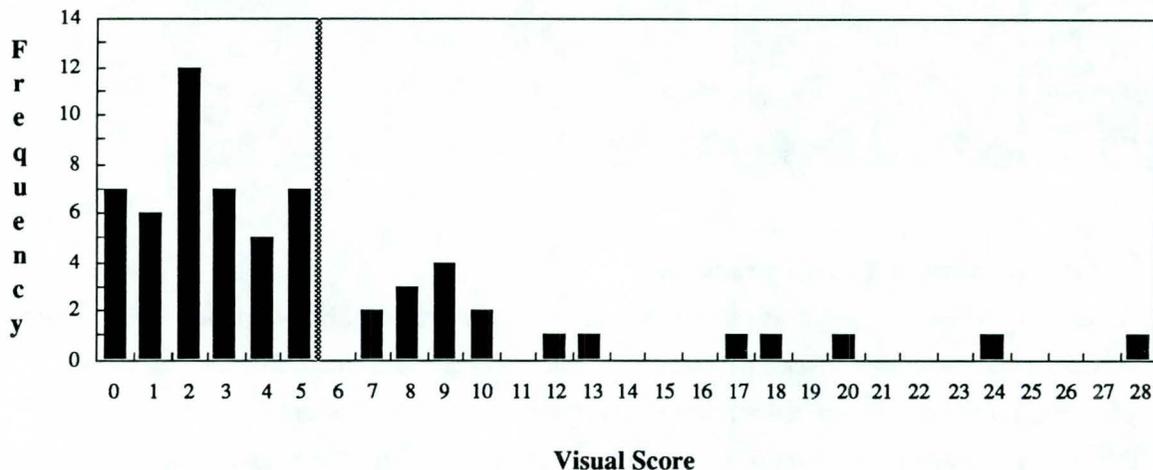
The Agricultural Fields (Type No. 16) are low-density, cultural landscapes used for agriculture. The major modifications are plowed and leveled fields, fences, roads, and irrigation ditches with occasional farm equipment. These fields are situated in relatively flat, cleared lowland scrub areas. Generally, the farm fields are not directly adjacent to the river, but one landscape type removed. The fields are bordered with fairly dense trees. The most striking aspect of these areas is the contrast between the fields and their surroundings. Seasonally, the contrast is created by the difference between the rich, vivid green, fine textured crops and the lighter, coarser textured scrub background. The farm fields are extremely open places.

## VISUAL LANDSCAPE TYPE No. 2

### Individual Scores



### Scoring Distribution



### Scoring Statistics

Place in Rank Order:	Preference Category:	Count:	Mean:		
27	Least Preferred	62	5.3548		
Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	28	28	0	3	2
Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
5.8593	0.7441	34.3310	109.4201	3.9358	1.9643

**Visual Landscape Type Illustration**



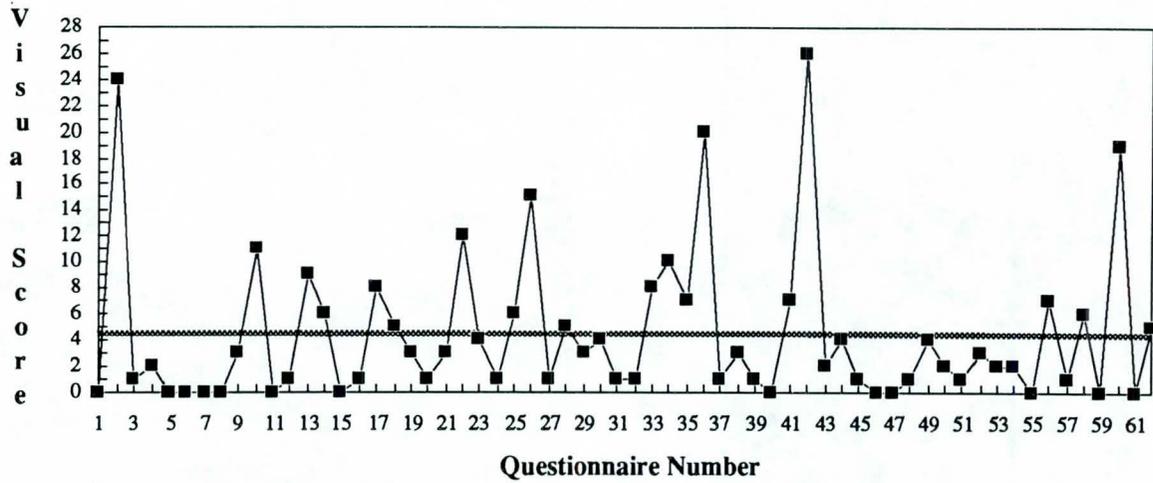
Bill Whitmore

**Visual Landscape Type Narrative**

The Tapco Substation (Type No. 2) is dominated by the smoke stack. It may be considered either a high intensity, disturbed natural landscape or a low density, cultural landscape type. The cultural modifications include the substation and related power lines. The power lines running into the substation draw in the viewer's eyes. The natural landscape is comprised of gravel, point, and channel bars with upland desert scrub vegetation. The smokestack creates a strong contrast to the natural landscape in form, color, material, and size. The skyline that results is not in harmony with its surroundings. The substation does have an element of mystery that could almost be considered dangerous.

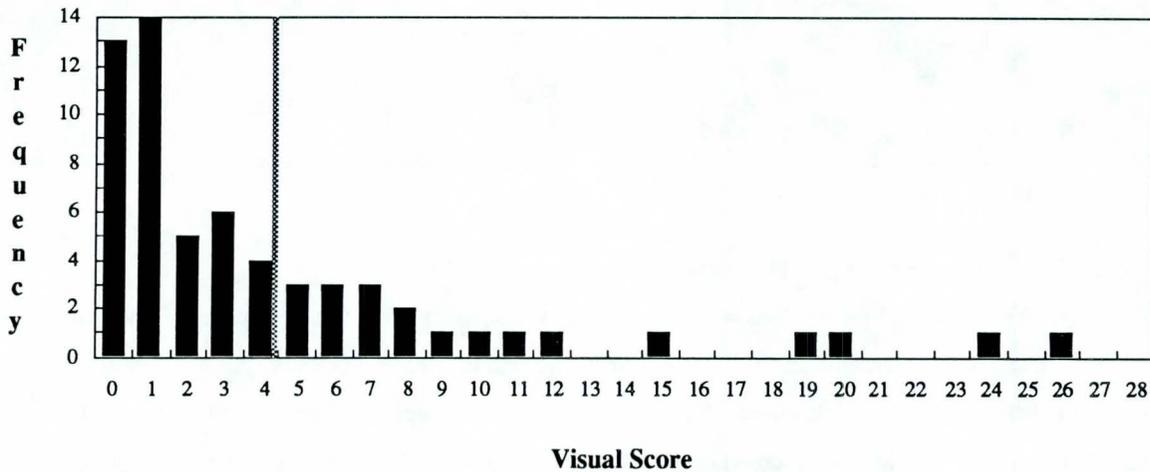
**VISUAL LANDSCAPE TYPE No. 15**

**Individual Scores**



----- Composite visual score = 4.4

**Scoring Distribution**



----- Composite visual score = 4.4

**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
28	Least Preferred	62	4.4194

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	26	26	0	2	1

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
5.8437	0.7422	34.1491	132.2303	4.0682	2.0705

**Visual Landscape Type Illustration**



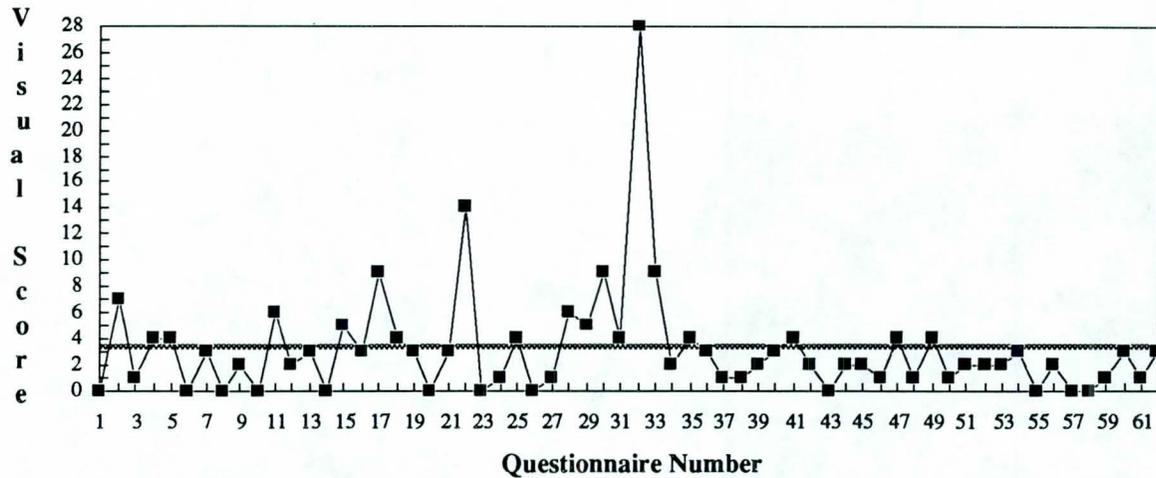
Bill Whitmore

**Visual Landscape Type Narrative**

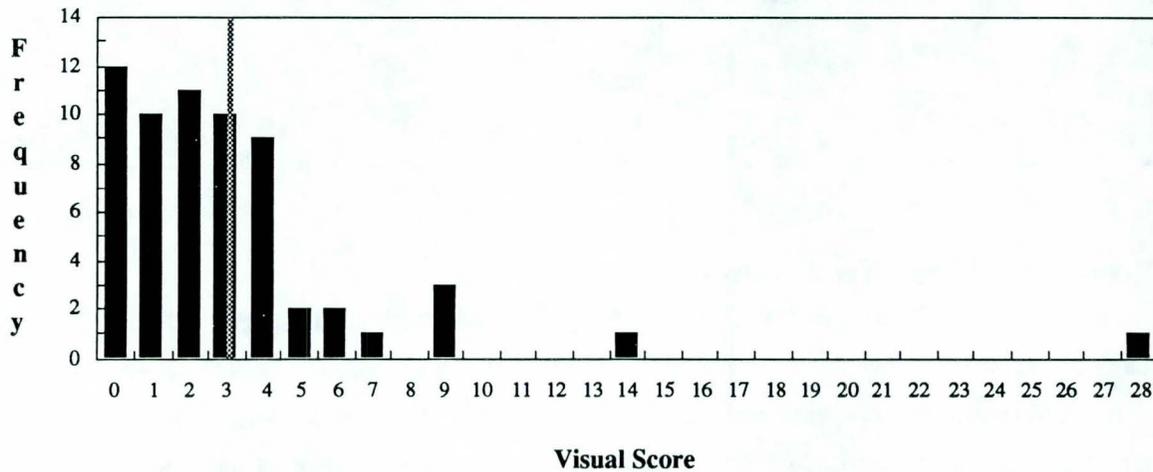
The Smelter Mill Tailings (Type No. 15) are obviously a landscape highly manipulated by people. The major disturbance is the overwhelming mountain created by the tailings. Other associated disturbances include various remnants of mining activity. This area is naturally quite beautiful because of the cliff and slope typography of the surrounding Verde Formation. However, the large black slag pile dominates the place. The mill tailings contrast sharply with the adjacent landform, water, and vegetation. The tailings are void of vegetation. The water is high in sediment and brownish in color. The river banks are channelized because of the tailings on one side and the riprap on the other. The surface of the tailings is fractured and reflective resulting in an interesting display of light at certain times.

**VISUAL LANDSCAPE TYPE No. 26**

**Individual Scores**



**Scoring Distribution**



**Scoring Statistics**

Place in Rank Order:	Preference Category:	Count:	Mean:
29	Least Preferred	62	3.1613

Minimum:	Maximum:	Range:	# Missing:	Median:	Mode:
0	28	28	0	2	0

Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Kurtosis:	Skewness:
4.1733	0.5300	17.4162	132.0116	18.9586	3.8242

**Visual Landscape Type Illustration**



Ted Cook

**Visual Landscape Type Narrative**

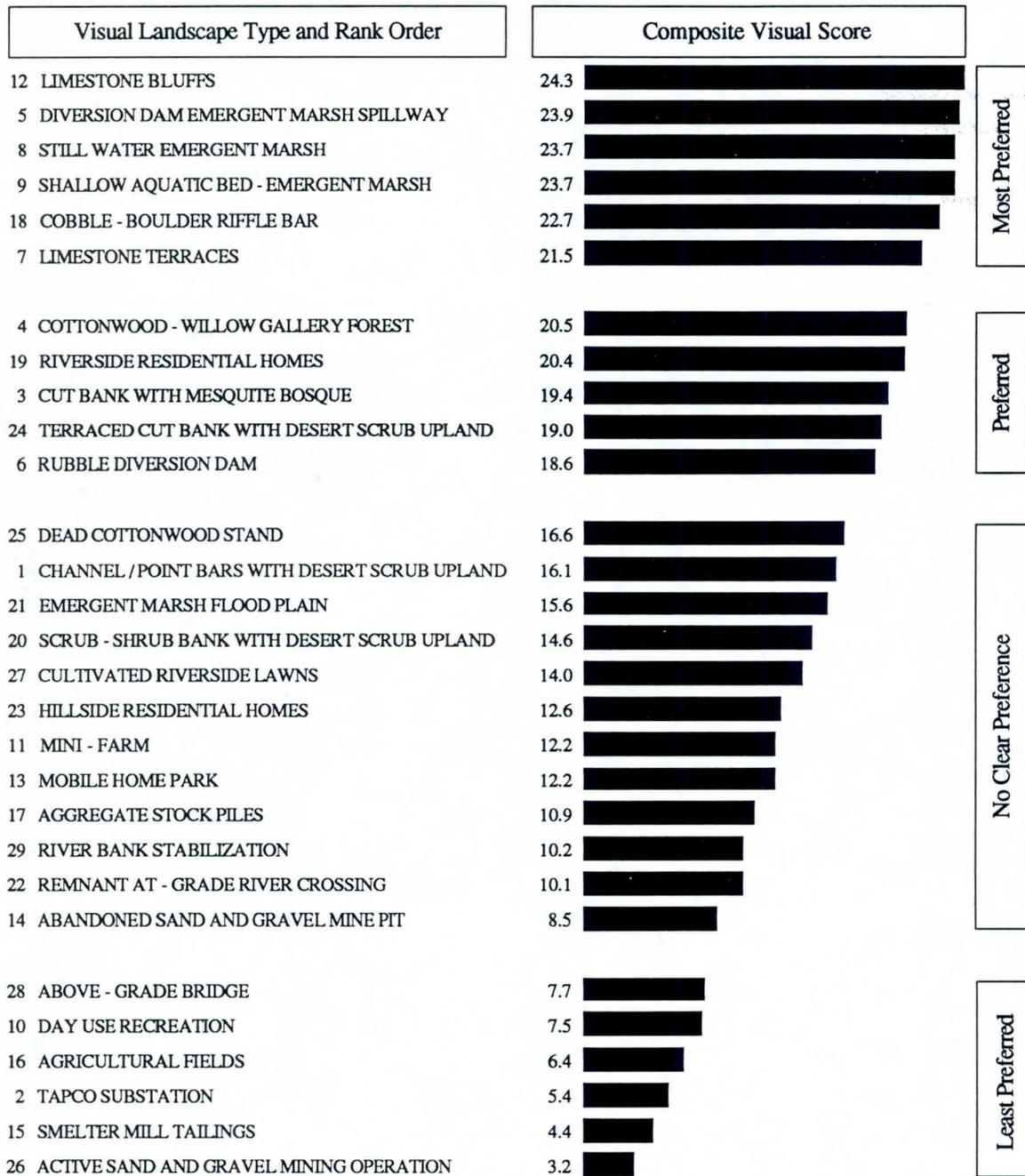
The Active Sand and Gravel Mining Operations (Type No. 26) are highly disturbed, cultural landscapes. The major disturbance is the sand and gravel mining operations. The landscape is largely denuded with little vegetation which, when combined with the flat terrain, results in little contrast. The colors are muted. One can see little detail because of the muted color and fine texture. In the middleground, the conveyor belts and heavy equipment are silhouetted against the Black Hills in the distance. The shoreline is linear and channel like. The space is extremely open while there are little space-defining elements.

By analyzing the preference ratings of the respondents, it became obvious that there were four distinct preference categories chosen by the public:

- **Most Preferred** (Rank order 1 through 6)
- **Preferred** (Rank order 7 through 11)
- **No Clear Preference** (Rank order 12 through 23)
- **Least Preferred** (Rank order 24 through 29)

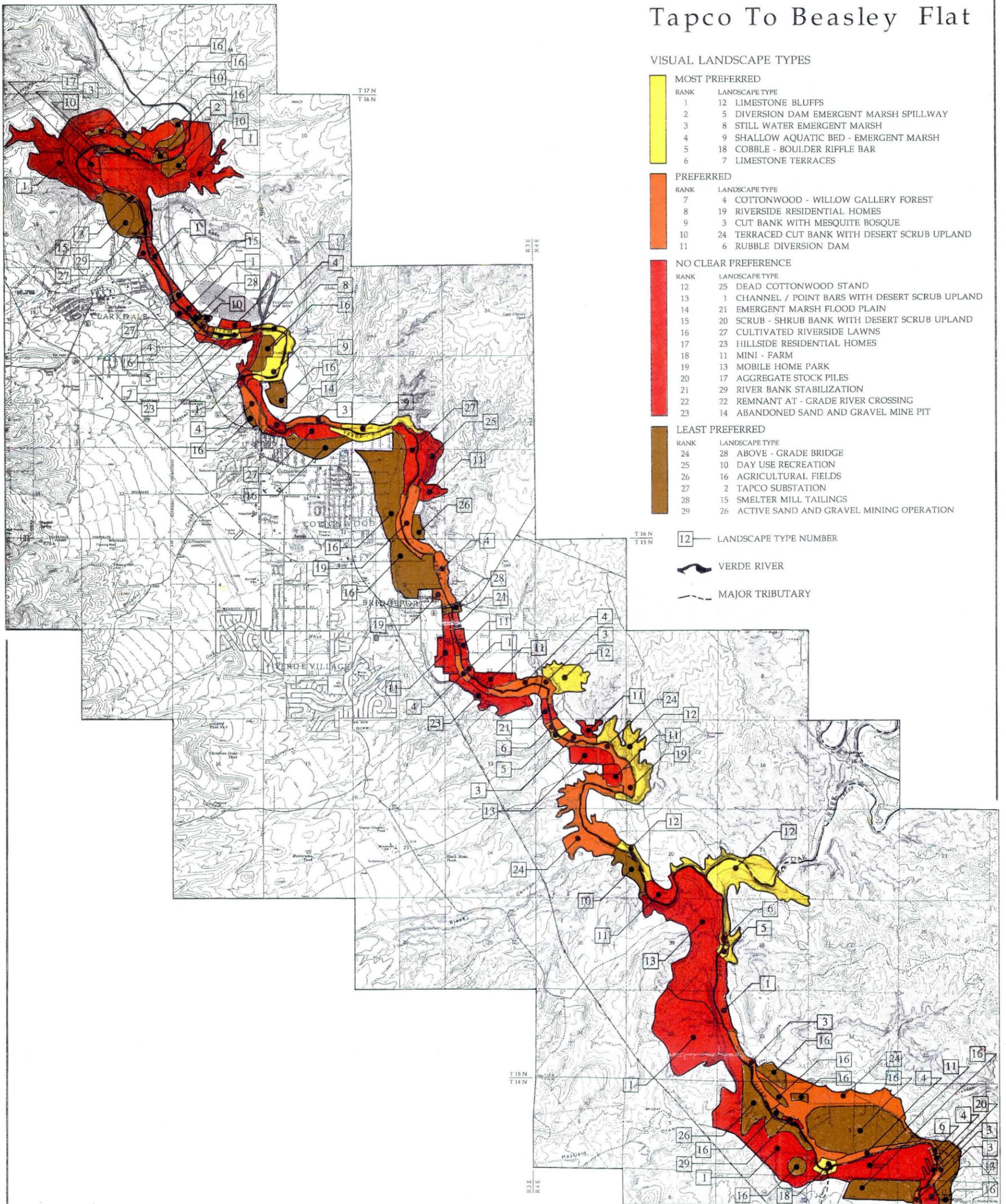
The preference divisions are not arbitrarily assigned, but rather reflect a statistical analysis which measures the central tendency of scoring distributions. In general, the categories represent preferences in the following manner. The first two categories, most preferred and preferred, statistically show distinct preference curves. The most preferred curve exhibits the highest level of central tendency, while the preferred curve has a slightly lower curve. A large number of landscapes fell into the no clear preference category, exhibiting flat statistical curves. The least preferred landscapes have a high level of central tendency, with no divisions such as in the two preferred categories. The preference categories are summarized in the bar chart (Figure 3) which shows the ranked visual landscape types, the composite visual scores, and the preference categories. Spatial locations of the visual landscape types and preference categories are also shown on Maps VLP 1 and VLP 2.

**Figure 3 - Rank Order and Preference Categories of Visual Landscape Types**



# VERDE RIVER CORRIDOR STUDY

## Tapco To Beasley Flat



### VISUAL LANDSCAPE TYPES

- |                            |   |
|----------------------------|---|
| <b>MOST PREFERRED</b>      |   |
| RANK                       | LANDSCAPE TYPE                                  |
| 1                          | 12 LIMESTONE BLUFFS                             |
| 2                          | 5 DIVERSION DAM EMERGENT MARSH SPILLWAY         |
| 3                          | 8 STILL WATER EMERGENT MARSH                    |
| 4                          | 9 SHALLOW AQUATIC BED - EMERGENT MARSH          |
| 5                          | 18 COBBLE - BOULDER RIFFLE BAR                  |
| 6                          | 7 LIMESTONE TERRACES                            |
| <b>PREFERRED</b>           |   |
| RANK                       | LANDSCAPE TYPE                                  |
| 7                          | 4 COTTONWOOD - WILLOW GALLERY FOREST            |
| 8                          | 19 RIVERSIDE RESIDENTIAL HOMES                  |
| 9                          | 3 CUT BANK WITH MESQUITE BOSQUE                 |
| 10                         | 24 TERRACED CUT BANK WITH DESERT SCRUB UPLAND   |
| 11                         | 6 RUBBLE DIVERSION DAM                          |
| <b>NO CLEAR PREFERENCE</b> |   |
| RANK                       | LANDSCAPE TYPE                                  |
| 12                         | 25 DEAD COTTONWOOD STAND                        |
| 13                         | 1 CHANNEL / POINT BARS WITH DESERT SCRUB UPLAND |
| 14                         | 21 EMERGENT MARSH FLOOD PLAIN                   |
| 15                         | 20 SCRUB - SHRUB BANK WITH DESERT SCRUB UPLAND  |
| 16                         | 27 CULTIVATED RIVERSIDE LAWNS                   |
| 17                         | 23 HILLSIDE RESIDENTIAL HOMES                   |
| 18                         | 11 MINI - FARM                                  |
| 19                         | 13 MOBILE HOME PARK                             |
| 20                         | 17 AGGREGATE STOCK PILES                        |
| 21                         | 29 RIVER BANK STABILIZATION                     |
| 22                         | 22 REMNANT AT - GRADE RIVER CROSSING            |
| 23                         | 14 ABANDONED SAND AND GRAVEL MINE PIT           |
| <b>LEAST PREFERRED</b>     |   |
| RANK                       | LANDSCAPE TYPE                                  |
| 24                         | 28 ABOVE - GRADE BRIDGE                         |
| 25                         | 10 DAY USE RECREATION                           |
| 26                         | 16 AGRICULTURAL FIELDS                          |
| 27                         | 2 TAPCO SUBSTATION                              |
| 28                         | 15 SMELTER MILL TAILINGS                        |
| 29                         | 26 ACTIVE SAND AND GRAVEL MINING OPERATION      |

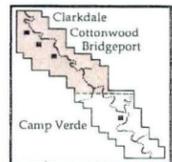
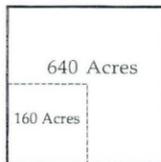
- 12 — LANDSCAPE TYPE NUMBER
- VERDE RIVER
- MAJOR TRIBUTARY

# VISUAL LANDSCAPE PREFERENCE VLP 1

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 DEPARTMENT OF PLANNING  
 COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN  
 ARIZONA STATE UNIVERSITY  
 SPRING, 1991

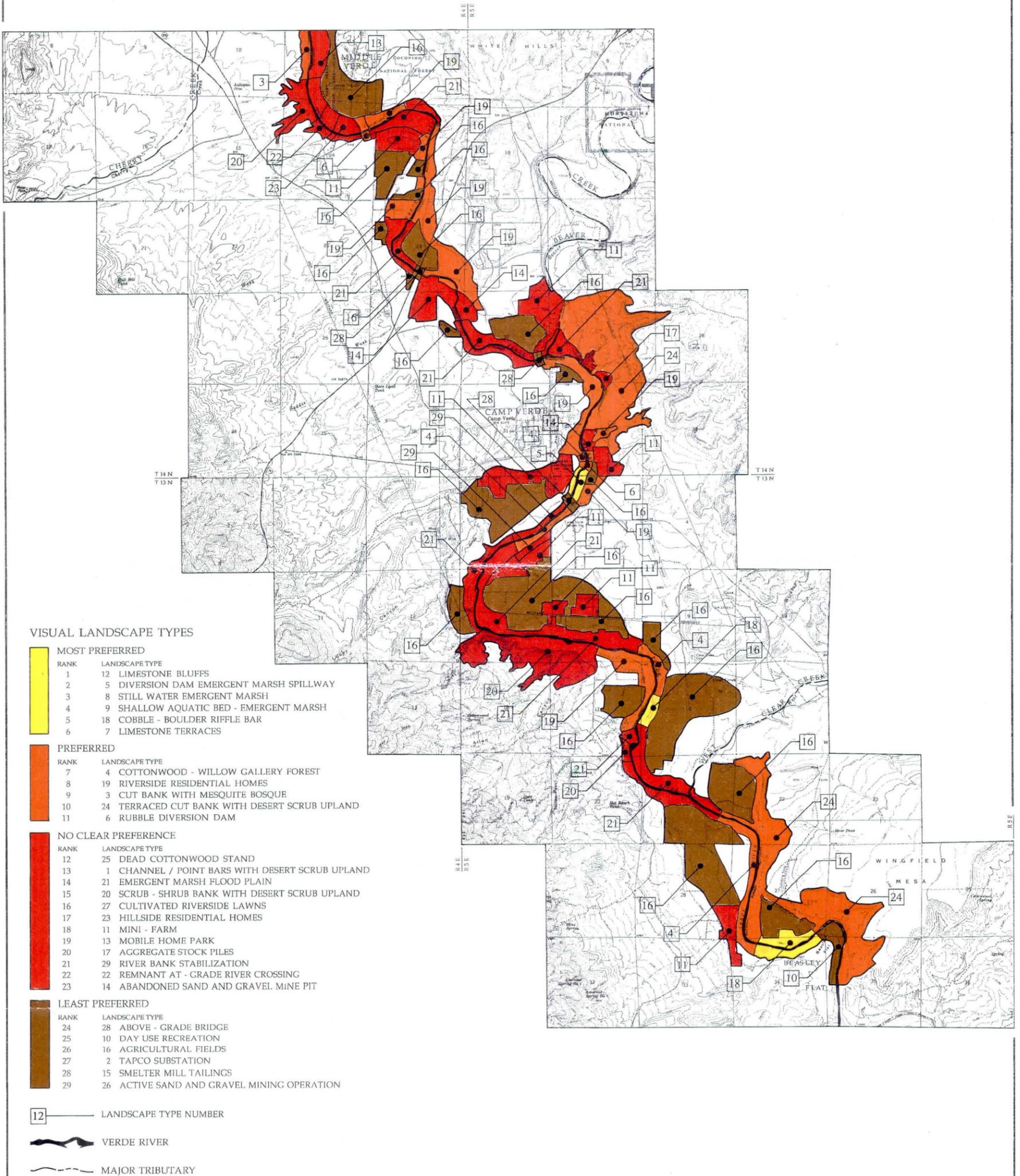
Prepared For:  
 ARIZONA STATE PARKS  
 VERDE NATURAL RESOURCE CONSERVATION DISTRICT  
 ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Map Base: USGS 7.5 min. Quadrangles (Clarkdale, Page Springs, Cottonwood, and Cornville)



# VERDE RIVER CORRIDOR STUDY

## Tapco To Beasley Flat



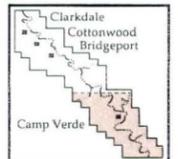
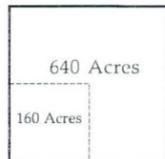
# VISUAL LANDSCAPE PREFERENCE

## VLP 2

Prepared By:  
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 SPRING, 1991

Prepared For:  
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 ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Map Base: USGS 7.5 min. Quadrangles (Middle Verde, Camp Verde, Arnold Mtn., and Horner Mtn.)



The six **most preferred** landscape types (Figure 3) are natural and wild in character with no apparent cultural modification. Two landscape features, the region's geology and a well developed riparian forest with emergent marshes, combine to create natural looking places. The naturalness of these areas is increased by irregular shorelines and overhanging vegetation. Even though individual plant types are discernible, the vegetative legibility is sometimes low because visual penetration and physical access is blocked. The enclosure is moderate to extreme with foreground elements dominating the views either by enframing or obscuring. These foreground elements include vegetation, adjacent landforms, and the river's meander. The dramatic aspect of these landscapes is the striking contrast between individual visual elements. Strong vertical forms in juxtaposition with the horizontal surfaces of water and marshes create sharp visual edges. The water surface is either highly reflective or visually alive with the highlights of surface effects such as ripples. The coarse texture and stark color of limestone bluffs and terraces or the deposition of boulders contrast sharply with the fine textures of shoreline trees, shrubs, and marshes. This contrast is also mirrored in the reflective water. These elements combined have created highly enclosed, visually exciting places that possess a sense of secluded wilderness capable of sheltering the user from the cultural surroundings.

Five landscapes were considered **preferred** (Figure 3) because the natural character remains even though cultural modifications or natural fluvial disturbances are present. The river is generally wide with a slightly undulating regular shoreline. Contrast remains high among landscape elements. Contrast elements vary within each landscape and include reflective surface water, stark soil color at cut banks, and the vivid emergent marshes that line the shore. Adjacent land uses, such as riverside homes, are naturally set back because of the river's flood plain. The presence of cultivated lawns also becomes a contrasting element to the shoreline plants. A well developed riparian forest edge is highly legible and physical access is possible. Limited visual penetration also exists. This partial visual screen is responsible for the average to moderate enclosure. The skyline is regular in height and the imposing tree canopies created by tall dense shoreline forests have been replaced by wide spaced trees or sparse scrub-shrub vegetation. Views are more open and the background occasionally can be seen.

Twelve very different landscape types are considered to have **no clear preference** (Figure 3). This preference category was included because some respondents liked them while others did not. This bipolar reaction to these areas indicates a lack of consensus concerning their visual quality. The landscapes are typically culturally modified. Modifications include hillside homes, mini-farms, bank stabilization to protect adjacent land uses, remnant river crossing and light structures, road cuts, utility lines, lawns, fences, aggregate stock piles, abandoned mine pits, and miscellaneous junk. The riparian edges have begun to degrade and shores are straight, regular, and disturbed.

Emergent marshes are localized and well trampled. The contrast between natural visual elements tends to be low. Cultural elements contrast sharply, however, and are inharmonious with the river's natural scenery.

The six **least preferred** landscape types (Figure 3) are all culturally modified. These alterations not only contrast sharply with the surrounding landscape, they dominate the area and become the primary visual element. Cultural modifications include bridges, smelter mill tailings, sand and gravel mining operations, day-use recreation sites, agricultural fields, and the Tapco substation. The river's riparian and emergent marsh edges are highly degraded or nonexistent. Upland vegetation is sparse or denuded with criss-crossing intermittent roads. Level terrain and straight eroded shores void of plants create weak visual edges with little enclosure. This absence of screening elements not only emphasizes the cultural modifications, but also contributes to the unnaturalness and monotony of the landscape.

Policy considerations can be attached to each landscape preference category. The landscapes rated most preferred by the public are obviously highly valued landscape types which should be preserved to maintain their pristine nature. The next category, preferred, is also valued by the public, and could be conserved with sustainable yield policies allowing some uses, with limitations. The least preferred landscape types usually exhibit extensive cultural modifications and could be the targets of mitigation and reclamation measures. The large group of landscapes labeled no clear preference represent areas where the formulation of management policy may be difficult. It may be necessary to encourage further public opinion of the management of these areas before policies can be established.

**Verde River Corridor Study**

**Public Nomination**



## **PUBLIC NOMINATION**

In keeping with the original spirit of the VRCP to address environmental quality issues at the local level, a public nomination visual assessment was conducted. Of the three methods, this process is influenced the least by outside expert values and aligns closely with Zube's et al. (1982) experiential paradigm. The Pinelands scenic study (McKenzie, 1979) also included a public nomination method which became the model for this project. Although this process is not as systematic as the other approaches utilized in this study, it was undertaken for several reasons. First, experiential perception involves more than visual aesthetics. Interaction between the landscape and the individual can touch feelings of tradition, investment, or unique circumstance that may result in a type of aesthetic that is more broadly based than pure visual aesthetics. Second, from a practical perspective, those who become involved in the nomination process are more likely to be familiar with the qualities of an area than individuals who have limited contact with that area. Third, these individuals often become strong advocates for appropriate management of environmentally sensitive areas.

### **Method**

Individuals who had previous contact or familiarity with this segment of the river were asked to nominate areas they felt had high scenic value or significance. A map of the Verde River study corridor was provided on the nomination form. The respondents were asked to spatially locate as many sites or areas along the river corridor which they felt possessed high scenic quality. The nomination criteria were unrestricted in order to allow inclusion of individual structures, specific sites or river reaches, or the entire study corridor. All nominations were counted equally. A brief written description and reason for choosing the area(s) was also requested. It was not necessary for both spatial locations and written descriptions to be included, and in many cases only written descriptions were given. (See Appendix F for a sample nomination form.)

To begin the nomination process, forms were mailed out to the individuals on the VRCP mailing list and distributed to visitors of Dead Horse Ranch State Park. The local newspaper, the *Verde Independent*, published a revised version of the nomination form with a short article describing the process. Nomination forms were also distributed at all public valuation workshops (see sample, Appendix F). These forms were inserted into the questionnaire-scoring packet and participants were encouraged to nominate their favorite landscapes before the end of the meeting. Thirty-two nomination forms were received during the course of the project with more than half of these responses resulting from the visual workshops. Five of the areas nominated were located outside the study boundary. These nominations outside the study area were mapped if possible and quotations from the respondents about these places are included in this report. These responses are indirectly important to this study because they reflect similar feelings about the Verde River's immediate surroundings and emphasize the need to act regionally when addressing scenic issues in the Verde Valley.

It was the intention of this study to represent the exact response of all nominations. Each nomination was translated literally to the map and scored equally. Interpretation of some nominations was necessary in order to define the nomination area when only sketchy drawings or written descriptions were submitted. Because this was a linear study, the width of the corridor had to be established before mapping could be completed. To keep from influencing the responses, corridor widths were not initially presented to the respondents. The majority of respondents however, located the nomination areas in relation to the river between familiar crossing such as bridges, river confluences, or developed areas. This fixation with the actual river course greatly influenced the decision to delineate the river's nomination corridor width by the Federal Emergency Management Agency (FEMA) designated floodway within the 100-year flood plain. Adjacent cut-banks or steeply sloped river banks were also included when deemed an integral part of the landscape.

Similar nominations were grouped into nomination areas and the final tabulation was simply a result of aggregating the total number of times the area was nominated. The nominated areas were spatially mapped by showing the total aggregate scores for each area.

### **Preference Opinions**

This approach encouraged the respondents to reflect on the landscape as a whole, not on first impressions as the public valuation method does. The written preferences are revealing about individual scenic preferences. Because of this, direct quotations have been included in this report. The objective of including these quotations was to maintain the integrity of the responses by people who have explored the landscape of the Verde River and have taken the time to reflect on their feelings.

Scenic preference opinions for each of the nomination areas are listed below:

Entire River Corridor (6 nominations).

*The entire length of the Verde is our priceless resource. If this area is designated scenic, it will promote cleaning up trashed areas and protect the more desired ones. There is a danger of license to abuse any area not designated as protected (scenic).*

*Civilization is rapidly taking over the river banks; mining operations are ruining banks and vegetation.*

*I cannot be of much help to you in this area, as I have never experienced an area of the Verde which is not scenic.*

*Ecological continuity.*

*It is a continuous, free-flowing, riparian area. The entire area deserves the distinction and any other privileges due a scenic area.*

No comment.

Entire River Corridor Including Beaver Creek, Oak Creek, and Clear Creek (1 nomination)

No comment.

Tuzigoot to Beasley Flat (1 nomination)

*I am disturbed by the projected plan by Phelps-Dodge putting a golf course on the old tailings pond. Watering will release the heavy metals in the tailings pond into the river - thus destroying the riparian habitat.*

Tapco and Surrounding Area (5 nominations).

*Beauty and historical usage.*

*Easy access and undeveloped.*

*There might be more scenic parts, but Tapco is about the only Verde River area I've really seen. (I've seen more of Oak Creek.)*

*I live by this area and I enjoy riding my horse near the river and swimming in the river.*

*I'm sure it used to be nice to keep the people from ruining the beautiful places.*

Tapco to Clarkdale (2 nominations)

*Variety of habitat and some Indian cliff dwellings up in the cliffs to the west.*

*Area north of Cottonwood/Clarkdale is sort of a gateway to the Sycamore Canyon area and Red Rock area.*

Clarkdale to the Confluence of Oak Creek (1 nomination)

*Community usage and enjoyment (Green Belt).*

Tapco to Dead Horse Ranch State Park (4 nominations).

*Large trees, inaccessibility, deep holes, wildlife.*

*Have traveled in the area, easy access.*

*This stretch has exceptional recreational accessibility. Tuzigoot and the cliffs along the west bank provide great scenery, and the wildlife - including bald eagles - is abundant.*

*Memories, cliff dwellings, Indian ruins, wildlife, and beauty.*

Tapco to Bridgeport (2 nominations).

*Tuzigoot, Verde River Greenway, Riverfront Park - all are in this area.*

*Scenic and boatable.*

Verde River by Dead Horse Ranch State Park (1 nomination)

*Great trees!!*

Cottonwood River Front (2 nominations).

*Wildlife, good waters, remoteness.*

*A high use area for river walks and controlled picnic areas.*

Verde Village River Front (3 nominations).

*Subject to abuse - important to village if properly cared for.*

*Varied riparian area.*

*Geographical difference along shore and in river.*

Middle Verde River Front (2 nominations).

*Wildlife, fishing, Indian ruins, trees, and terrain.*

*Vegetation, diversity of birds, and other wildlife.*

Mahon's Gravel Pit (1 nomination).

*Wintering area for migrating waterfowl, personal hunting area during waterfowl season, beaver dams in area of old sand and gravel operation.*

Confluence of Oak Creek and the Verde River (1 nomination).

*Plenty of sandy beaches - good place for camping and family outings.*

Camp Verde to Beasley Flat (4 nominations).

*I canoed it once and saw lots of wildlife, Blue heron, geese, etc. It was peaceful and beautiful.*

*Have traveled it, close to home, easy access, ruins and areas still rugged, beauty of area.*

*Makes nice day (river) trip.*

*Easy access and boatable.*

Camp Verde River Front (1 nomination).

*Size of water area useable, lack of current for use for seniors or children.*

Confluence of West Clear Creek and the Verde River (2 nomination).

*A very beautiful area - heron nest, bald eagles, lots of other animals (it's in Prescott National Forest).*

*Present 100-year flood plain is becoming an undesirable area, feeds Verde River and will make an excellent public area if cleaned up and planned for future public area, no value as is except for illegal use, no practical use due to flood area designation.*

Beasley Flat (1 nomination).

*Scenic, fairly close to residence (but not too close) and already an area used for recreation and sports.*

Area nominations and the accompanying preference responses outside the study area but emphasizing similar regional scenic opinions are listed below:

From Sycamore Creek / Verde River confluence to Tapco (1 nomination).

*Towering cliffs, lots of fish, no buildings except near Tapco.*

Verde River above Tapco (1 nomination).

*No development.*

Montezuma Castle (2 nominations).

*Open spaces, nice scenery.*

*Nice, quiet.*

West Clear Creek from Verde River to highway bridge on Route #260 (1 nomination).

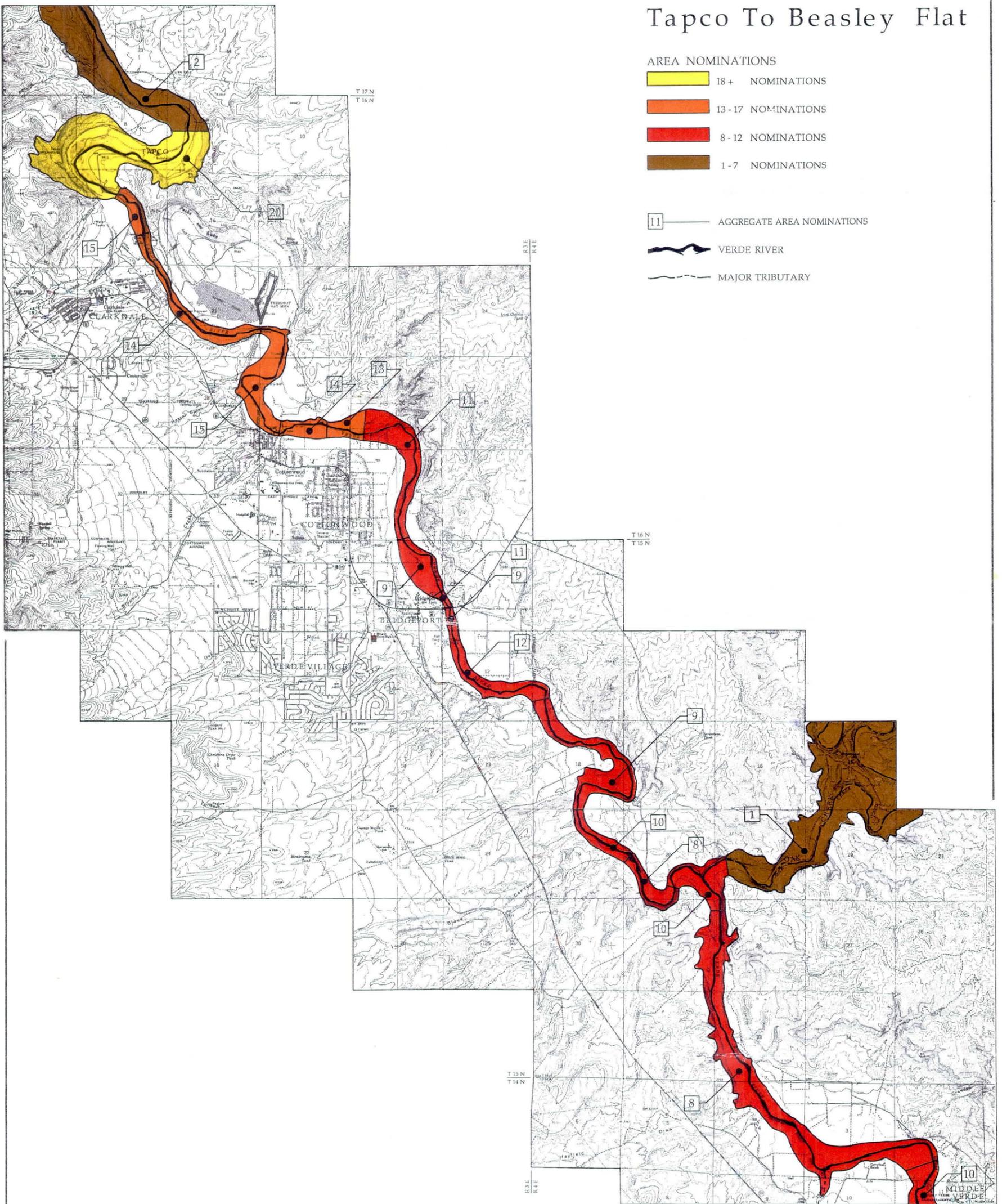
*See Confluence of Clear Creek and the Verde River.*

### **Findings**

The aggregated scores of individually nominated areas were grouped to reflect the ranges of scores that defined river segments with similar experiential scenic qualities. The spatial distribution of both aggregate scores and ranges are shown on Maps SAN 1 and SAN 2. The scores shown were arrived at in the following manner.

# VERDE RIVER CORRIDOR STUDY

## Tapco To Beasley Flat



### AREA NOMINATIONS

- 18+ NOMINATIONS
- 13-17 NOMINATIONS
- 8-12 NOMINATIONS
- 1-7 NOMINATIONS

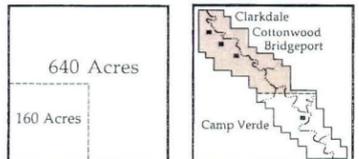
- 11 AGGREGATE AREA NOMINATIONS
- VERDE RIVER
- MAJOR TRIBUTARY

## SCENIC AREA NOMINATION

## SAN 1

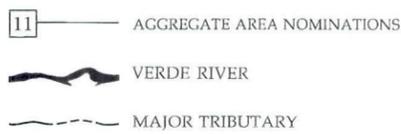
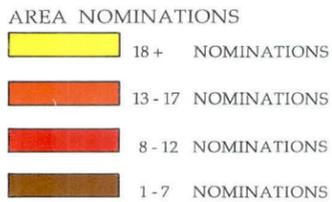
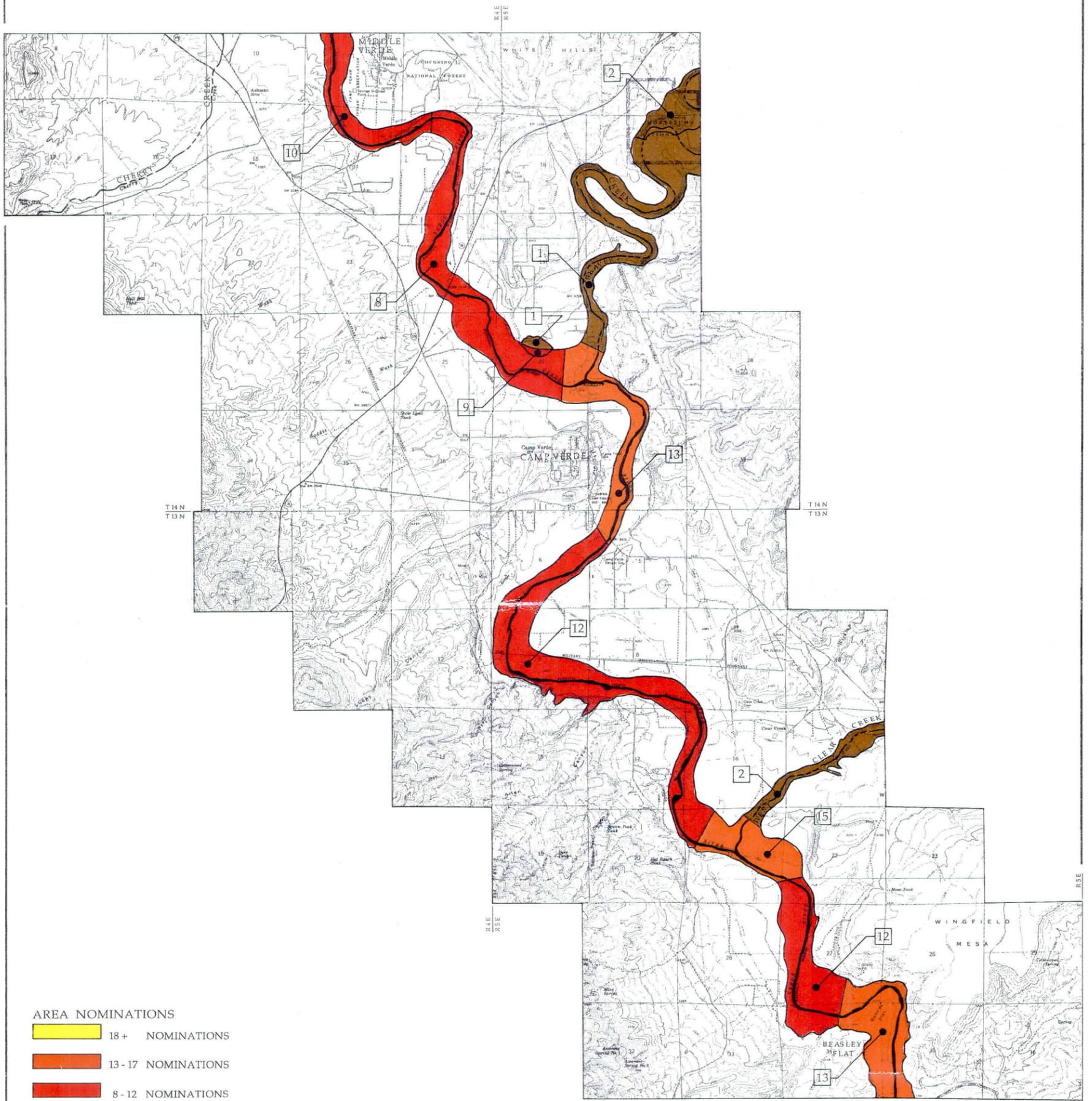
Prepared By:  
 DEPARTMENT OF PLANNING  
 COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN  
 ARIZONA STATE UNIVERSITY SPRING, 1991  
 Floodway: Federal Emergency Management Agency Flood Boundary and Floodway Map.  
 Yavapai County, Arizona. August 19, 1985. Maps 040093 0001 - 040093 0006  
 Map Base: USGS 7.5 min. Quadrangles (Clarkdale, Page Springs, Cottonwood, and Cornville)

Prepared For:  
 ARIZONA STATE PARKS  
 VERDE NATURAL RESOURCE CONSERVATION DISTRICT  
 ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY



# VERDE RIVER CORRIDOR STUDY

## Tapco To Beasley Flat



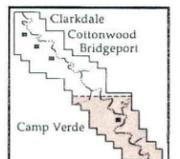
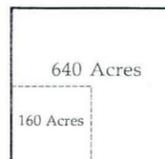
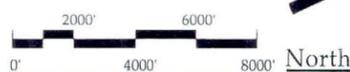
### SCENIC AREA NOMINATION

SAN 2

Prepared By:  
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ARIZONA STATE UNIVERSITY

Prepared For:  
ARIZONA STATE PARKS  
VERDE NATURAL RESOURCE CONSERVATION DISTRICT  
ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Floodway: Federal Emergency Management Agency Flood Boundary and Floodway Map.  
Yavapai County, Arizona. August 19, 1985. Maps 040093 0007 - 040093 0010  
Map Base: USGS 7.5 min. Quadrangles (Middle Verde, Camp Verde, Arnold Mtn., and Horner Mtn.)



Thirty-two forms were received, with some persons nominating more than one area. The highest number of nominations, almost twice as many as the next most nominated area, was given to the entire river corridor. The eight nominations for the entire corridor formed the base layer of the aggregated nominations, with additional votes being added to each river segment mentioned. This method led to a series of areas along the river corridor with votes ranging from eight to twenty. Some areas outside the corridor were nominated and are shown on the map with scores of less than eight.

The fact that the entire river corridor received the largest number of nominations is an interesting finding in that it reflects a strong interest by the public in preserving the river's scenic quality in its entirety. The free-flowing river and adjacent riparian edge are highly valued resources which merit scenic protection. These eight nominations were uniform in calling for preservation of the river from increased human impact. They showed a concern that current land uses were degrading a valuable resource, and wanted to provide scenic protection for the river.

In addition to the entire corridor, a second notable area, the segment of the river surrounding the Tapco substation, received the highest aggregate score of twenty nominations. In addition to the many recreational day use opportunities resulting from easy access, the area's beauty and historical significance were cited as reasons for considering the area a gateway to the scenic river canyons to the north. Wildlife is present and often seen. Also visible from this area are Native American cliff dwellings.

Four other highly rated areas, with thirteen or more votes each, are also delineated on the maps. These areas are: the upper segments of the river from Dead Horse Ranch State Park north to Tapco, the confluence of Beaver Creek through Camp Verde, the confluence of West Clear Creek, and Beasley Flat. The river segment north of Dead Horse contains many recreational opportunities and is easily accessible for day users. The presence of wildlife is evident. Also visible from this area are the Native American ruins of Tuzigoot, a national monument. It was apparent from the responses on these forms that the preservation of these views is important to the public.

The confluences of Beaver Creek and West Clear Creek with the Verde River, along with Beasley Flat, are also considered valued scenic areas. Native American dwellings situated in the rugged surrounding cliffs, peacefulness, and beauty were credited for the recreational enjoyment of this portion of the river. An abundance of wildlife including Blue heron nests and Bald eagles were also noted.

A notable area receiving eight to twelve nominations is the segment of the river from Middle Verde to Camp Verde. This area is not as accessible as the Dead Horse to Tapco segment, but it seems the respondents felt the lack of accessibility to actually be a positive factor. The emphasis of their opinions was on activities involving the appreciation of nature, such as canoeing, hiking, and horseback riding.

Casual day users would not be as common in these areas. The people using these areas go there for specialized recreation activities.

Other specialized uses are reflected by the areas with a score of eight to twelve nominations. The river segment near Camp Verde has a slow current and is amenable to use by families with children and by the elderly. The sand beach at the confluence of Oak Creek was also favored for camping and family activities. The areas with scores of one to seven, outside the study area, emphasized the lack of development and the serenity of wild natural places.

The opinions expressed in the public nomination indicate that the scenic quality of the Verde River is influenced by the users' experiences in relationship to the surrounding landscape. Scenic depictions such as beauty, remoteness, peaceful, historical, memories, and undeveloped describe more than the individual visual elements present in the landscape. The respondents clearly regard the river's landscape as a complex integral system that is responsible for the high quality recreation opportunities existing within the Verde Valley. This emphasis on the recreation amenity and the need to preserve the free-flowing characteristics of the river from increased cultural degradation is fundamental to ensuring that the lifestyle now enjoyed by the residents of the valley will continue.

**Verde River Corridor Study**

**Conclusions and Recommendations**



## **CONCLUSIONS AND RECOMMENDATIONS**

### **Composite Findings**

The original intent of this project was to combine all three methods of visual assessment into a composite map. However, once the three segments were complete, it was decided that such a combination would be artificial and yield no new useful information. The individual results from each of the methods yielded distinct findings interesting in their own right. The major findings of each method follow.

With the expert approach, scenic quality is evaluated by rating the landscape characteristics and relating them to the surrounding physiographic region. The landscape of the Verde River, with flowing water, significant riparian vegetation, and rock outcroppings set in the backdrop of Verde Formation limestone, is unique when evaluated in the context of the arid uplands typical of the Central Highlands province. Using BLM criteria, this rarity resulted in 83 of 99 scenic reaches receiving scenic classification A, and suggests much of the river corridor possesses a high level of scenic quality. The relatively few areas receiving lower scenic rating did so because of substantial cultural modifications that offset the high scenic quality of the surrounding natural environment.

Respondents in the public valuation portion of the study indicated the most preference for the region's geologic structure in combination with the well-developed riparian forest and emergent marsh edges along the river. These landscapes had no cultural modifications and exhibited strong contrast in form, texture, and color between natural elements. These areas have a high degree of enclosure and mystery.

Preferred landscapes are natural in character with few disturbances or cultural modifications. The landscapes created by fluvial process, such as cut banks, were considered scenic as well. Water surfaces are open, smooth, and reflective. A well-developed riparian forest edge is present but contrast between natural elements is lower. Enclosure is moderate with open end views.

Landscapes exhibiting no clear preference are typically culturally modified landscapes such as hillside homes and mini-farms. Modifications also include bank stabilization, remnant light structures, and miscellaneous items such as power lines, lawns, fences, aggregate stock piles, and junk scrap. These river segments have degraded riparian edges and enclosure is moderate.

The least preferred landscapes are typically culturally modified to the extent that the alteration is dominant over the surrounding natural landscape. These modifications include heavy structures such as bridges, mining apparatus, mill tailings, and the Tapco substation. Day use recreation and agricultural fields also are ranked low on the preference scale. These cultural landscapes contrast sharply, and are inharmonious with the surrounding natural areas. The river's edge is highly degraded and enclosure is low.

Public nominations of scenic quality encouraged the respondents to reflect on the river landscape as a whole. These personal observations resulted in landscape preferences that transcend visual concerns. The entire river corridor received the largest number of nominations. This indicates a strong interest in preserving the adjacent riparian edge and free-flowing characteristics of the river from increased cultural degradation.

The river segment between Tapco and Dead Horse Ranch State Park was noted for its easy access and many recreational opportunities. Most nominations indicated the surrounding beauty, presence of wildlife, and views of cliff dwellings and Tuzigoot National Monument as important factors contributing to the enjoyment of the area.

Between Middle Verde and Camp Verde, river access is not as easy. This lack of accessibility, however, is considered a positive factor by the respondents engaged in nature activities such as hiking, canoeing, horseback riding, and wildlife observation. Casual day use areas around Camp Verde and the confluence of Oak Creek are mentioned because of the sand beaches and slow current amenable to use by families with small children and by the elderly. The public nominations reflect a combination of values, including visual quality, but emphasizing recreational amenities. The public nominations also indicate that many people view the corridor as a whole system.

### **Recommendations**

This study indicates that the scenic quality of the Verde Valley is high. Its beauty is important to those who are attracted there to live as well as those who visit the area from elsewhere. The high scenic quality is significant regionally and statewide. It contributes to economic development as a factor in tourism, recreation, and retiree settlement. But beyond economic value, the visual nature of the Verde landscape is important to the quality of the lives of the Verde Valley residents and of all Arizonans who seek the wide open spaces of the American West.

Two types of recommendations can be offered based on this study. The first can be categorized as housecleaning. These actions would enhance the appearance of the river corridor:

- Use indigenous plant materials for bank stabilization efforts so that they blend with natural surroundings.
- Screen unsightly land uses from the river by revegetating riparian areas.
- Mine the slag dome for fill or nonstructural aggregate to eliminate this visual scar.
- Remove all unused structures from the river corridor including flumes, footings, dam gates, and bridge abutments.

- Clear river of all trash and large items such as cars.
- Paint bridges in appropriate colors that are harmonious with the background geology.
- Locate facilities including trash receptacles, fire pits, and restrooms at heavily used day recreation sites. Well-marked permanent access roads should be established to prevent the wandering of vehicles and eventual denuding of the natural areas of the terrain.
- Improve river access at bridge locations to provide ingress and egress for water activities. By providing dependable access points at regular intervals along the river, the more random access habits now in practice will be discouraged. These practices degrade the shoreline as illustrated in day use recreation areas.
- Remove aggregate stock piles from point bars and revegetate them.
- Remove abandoned heavy equipment and buildings near unused mining pits. These pits, if reclaimed and revegetated, will not only increase the scenic values but can provide recreation opportunities and expand wildlife habitat.

The second category of recommendations involve government actions. State and local governments should consider:

- the purchase of permanent scenic easements or fee-simple purchase of the landscapes identified as most preferred by the public;
- the adoption of design standards to protect views and to integrate new development into the existing landscape;
- the highly rated landscape types in all management and planning decisions;
- the maintenance of instream flows within the river channel required to support the aquatic and riparian habitats needed for preserving scenic quality;
- the development of ongoing educational efforts about the scenic quality of the Valley directed toward residents, tourists, and potential tourists; and
- the initiation of further research about the interrelationships among natural, cultural, and aesthetic values.

Scenic easements especially merit serious consideration. Easements have been used in other parts of the nation, such as the Blue Ridge Parkway in Virginia, to protect views. There are two strengths of easements. First, they are a permanent protection measure. Second, private property rights can be maintained and private property owners can receive financial benefits. The new Arizona Heritage Fund provides the source of funding to purchase such easements.

Easements are but one option, which certainly could be used as part of more comprehensive efforts. Some action in whatever form is necessary. The Verde Valley is a beautiful place. That beauty is fragile. If the Verde Valley is visually degraded, the negative consequences to the local quality of life and economy would be substantial.

**Verde River Corridor Study**

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**Appendix A**

**Viewshed Scenic Quality Field**

**Inventory**



**VERDE RIVER CORRIDOR STUDY: Tapco To Beasley Flat**  
**Visual assessment: viewshed scenic quality field inventory**

Viewshed Area:

Date:

Landscape Character (Feature)			
	Landform/ Water	Vegetation	Structure
Form			
Line			
Color			
Texture			

**Narrative:**

Score					
	High (5)	Med. (3)	Low (1)	Explanation or Rationale	Classification
Landform Vegetation Water Color Adjacent Scenery Scarcity Cultural Modification					<input type="checkbox"/> A (19 or more) <input type="checkbox"/> B (12 to 18) <input type="checkbox"/> C (11 or less)
<b>Totals</b>					

**Appendix B**

**Visual Landscape Type Field**

**Inventory**



**VERDE RIVER CORRIDOR STUDY: Tapco To Beasley Flat**  
**Visual assessment: visual landscape type field inventory**

Location:

Date:

**Natural Landscape Types (Narrative)**

- A** Undisturbed Natural Landscape:
- B** Low Intensity Disturbed Landscape:
- C** High Intensity Disturbed Landscape:

**Cultural Landscape Types (Narrative)**

- A** Low Density:
- B** Medium Density:
- C** High Density:

**Description:**

Landform  
Vegetation Patterns  
Water Forms  
Rock Formations  
Color  
Texture  
Harmony  
Variety  
Contrast  
Adjacent Scenery  
Scarcity  
Cultural Modification

**Appendix C**

**Citizen Participation Questionnaire**

(Adaped from McKenzi, 1979)

# VERDE RIVER CORRIDOR STUDY: Tapco To Beasley Flat

## Visual assessment: citizen participation questionnaire

We need some information about you to help us understand where you come from and how you use the Verde River. This is important because we expect to find that scenic tastes vary, and we need to search for patterns so that all preferences may be included.

Please circle the appropriate response:

Age: 0 - 6            7 - 13            14 - 20            21 - 34            35 - 64            65+

Race: White            Black            Asian            Am. Indian            Spanish origin            Other \_\_\_\_\_

Sex: Male            Female

Location of current residence: \_\_\_\_\_

Occupation: \_\_\_\_\_

Education:    Less than high school    High school    College    Graduate work

Where did you spend the majority of your childhood:

State \_\_\_\_\_ City \_\_\_\_\_

Environment you spend the majority of your childhood ( circle more than one, if applicable):

Inner city    City suburb    Small town    Farmland    Woodland    Desertland

How have you used the Verde River Valley in the past ( circle more than one, if applicable):

Resident	Visitor of historic sites
Seasonal resident	Hunting
Farming	Fishing
Business	Canoeing
Ranching	Swimming
Vacationing	Photographing
Day recreation	Nature study
Horseback riding	Off road vehicle / 4WD
Camping	Other (specify) _____

How long have you used the Verde River Valley:

less than 1 year    1 - 5 years    6 - 15 years    16 - 35 years    36+ years

If you are not a resident or seasonal resident, how often do you use the Verde River Valley:

1 or more days a week

1 or 2 days a month

For several days at a time once or twice a year

For several weeks at a time once or twice a year

1 or 2 days every 6 months

1 or 2 days every year

Only 1 or 2 times ever

Never

Other (specify) \_\_\_\_\_

**Appendix D**

**Verde Valley Sample Characteristics**



CLASSIC CREST

# VERDE RIVER CORRIDOR STUDY: Tapco To Beasley Flat

## Verde Valley sample characteristics

Age		
0-6	0	0%
7-13	0	0%
14-20	26	42%
21-34	6	10%
35-64	22	35%
65+	8	13%

Race and Ethnicity		
White	60	96%
Black	0	0%
Asian	0	0%
Am. Indian	1	<2%
Spanish	1	<2%
Other	0	0%

Sex		
Male	35	56%
Female	27	44%

Location of Current Residence		
Camp Verde	16	26%
Bridgeport	1	<2%
Prescott	1	<2%
Clarkdale	1	<2%
Sedona	5	8%
Cottonwood	25	40%
Verde Village	3	5%
Cornville	2	3%
Other regional res.	8	12%

Education		
<High School	0	0%
High School	25	40%
College	23	37%
Graduate Work	23	19%
No response	2	4%

Years Using Verde Valley		
<1	4	6%
1-5	15	24%
6-15	21	34%
16-35	13	21%
36+	5	8%
NR	4	7%

Verde Valley Use		
Resident	54	87%
Seasonal Residents	0	0%
Farming	5	8%
Business	8	13%
Ranching	1	2%
Vacationing	12	19%
Day Recreation	36	58%
Horseback Riding	19	31%
Camping	31	50%
Historic Sightseer	33	53%
Hunting	12	19%
Fishing	28	45%
Canoeing	16	26%
Swimming	35	56%
Photography	27	44%
Nature Study	18	29%
Off Road Veh./4WD	8	13%
Hiking	2	3%
Biking	2	3%
Wildlife Conservation	1	<2%
Painting	1	<2%
Bird Watching	1	<2%
Never	2	3%

Occupations	
Wildlife Manager	2
Hydrologist	2
Natural Resource	
Manager Consultant	1
Sales	2
Home Maker	1
Retired	10
Park Manager	2
Maintenance Person	1
Student	22
Printer	1
Teacher	2
Tour Boat Owner	2
Self employed	2
Business Manager	1
Planner	1
Sanitary District Manager	1
Food Service Director	1
Bike Shop Owner	1
Animal Breeder	1
Medical Technical	1
Editor	1
Social Worker	1
Nurse	1
Public Service	1
No Response	1

Childhood Environment		
Inner City	8	13%
City Suburb	21	34%
Small Town	27	44%
Farmland	6	10%
Woodland	5	2%
Desertland	2	3%

\*More than one response possible

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**Appendix E**

**Citizen Participation Worksheet**



(Adaped from McKenzie, 1979)

# VERDE RIVER CORRIDOR STUDY: Tapco To Beasley Flat

## Visual assessment: citizen participation worksheet

You will be shown a series of color slides which illustrate the visual landscape types existing within the Verde River corridor. Each slide will be displayed in a pair with each other slide.

View the slide pairs as reminders of the real landscape and select the slide in each pair you feel possesses the better scenic quality. Mark your preference for each pair on the following worksheet by selecting *left hand slide better*, *right hand slide better*, *both slides equally good*, *both slides equally bad*, or *no preference*.

Your preference selection should be made using first impressions without contemplating the reason for the preference, thinking only of the slide pair being shown, and using draw votes as little as possible.

### Preference selection

Pair No.	Left hand slide better	Both slides equally good	No preference	Both slides equally bad	Right hand slide better	Pair No.	Left hand slide better	Both slides equally good	No preference	Both slides equally bad	Right hand slide better
1	<input type="checkbox"/>	19	<input type="checkbox"/>								
2	<input type="checkbox"/>	20	<input type="checkbox"/>								
3	<input type="checkbox"/>	21	<input type="checkbox"/>								
4	<input type="checkbox"/>	22	<input type="checkbox"/>								
5	<input type="checkbox"/>	23	<input type="checkbox"/>								
6	<input type="checkbox"/>	24	<input type="checkbox"/>								
7	<input type="checkbox"/>	25	<input type="checkbox"/>								
8	<input type="checkbox"/>	26	<input type="checkbox"/>								
9	<input type="checkbox"/>	27	<input type="checkbox"/>								
10	<input type="checkbox"/>	28	<input type="checkbox"/>								
11	<input type="checkbox"/>	<u>PAUSE</u>									
12	<input type="checkbox"/>	29	<input type="checkbox"/>								
13	<input type="checkbox"/>	30	<input type="checkbox"/>								
14	<input type="checkbox"/>	31	<input type="checkbox"/>								
15	<input type="checkbox"/>	32	<input type="checkbox"/>								
16	<input type="checkbox"/>	33	<input type="checkbox"/>								
17	<input type="checkbox"/>	34	<input type="checkbox"/>								
18	<input type="checkbox"/>	35	<input type="checkbox"/>								

**Appendix F**

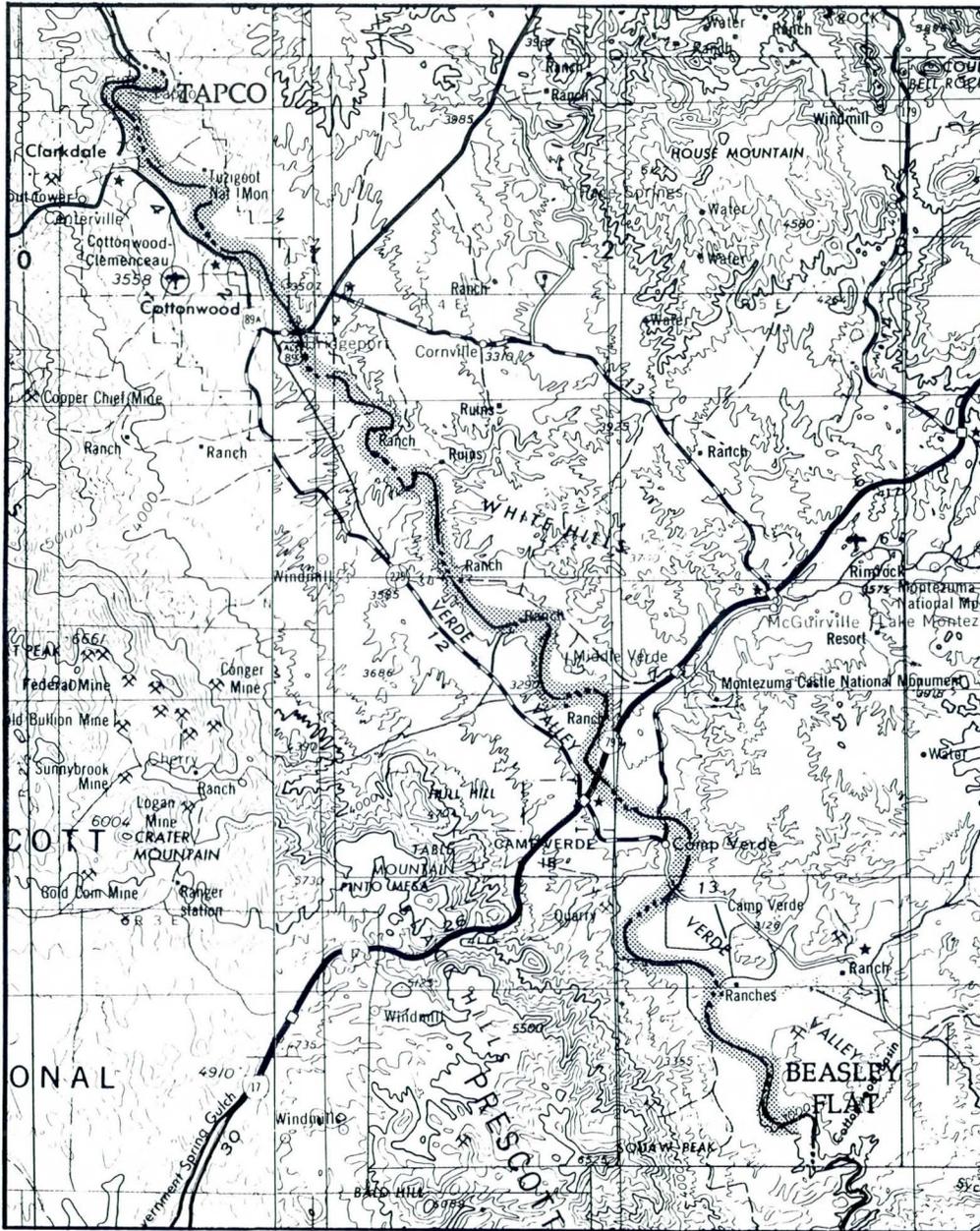
**Scenic Nomination Form**



(Adaped from McKenzie, 1979)

# VERDE RIVER CORRIDOR STUDY: Tapco To Beasley Flat

## SCENIC NOMINATION FORM



- Please nominate as many locations or areas along the Verde River Study Corridor you feel possess scenic quality.
- Nominations can be individual buildings, specific sites or river reaches, or the entire study corridor.
- Mark nominated area(s) clearly and accurately, if possible on the map and number each scenic area with a different number.
- A brief reason for choosing the area(s) is desirable but not necessary.
- Use additional sheets as needed, all votes will be treated equally.

I wish to nominate the area(s) designated on this form and map as a Verde River Scenic Area(s).

Name \_\_\_\_\_

Address \_\_\_\_\_

Length of residence in area (years) \_\_\_\_\_

SCENIC AREA No. \_\_\_\_\_

Location \_\_\_\_\_

Reason for preference \_\_\_\_\_

SCENIC AREA No. \_\_\_\_\_

Location \_\_\_\_\_

Reason for preference \_\_\_\_\_