



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Las Vegas Field Office
4701 North Torrey Pines Dr
Las Vegas NV 89130
www.nv.blm.gov



In Reply Refer to:
6840 (LLNVS01000)

Dear Interested Party:

The Bureau of Land Management (BLM) is presenting for your review the preliminary Environmental Assessment (EA) that analyzes Effectiveness Monitoring for Salt Cedar and Knapweed Control on the Upper Muddy River Floodplain. Electronic copies will be available on the Las Vegas BLM website by October 1, 2008 (http://www.blm.gov/nv/st/en/fo/lvfo/blm_programs/planning.1.html).

The Nature Conservancy is proposing to conduct experimental manipulations of riparian vegetation along the Muddy River to reduce site dominance of two plant species, salt cedar (*Tamarisk* spp.) and Russian knapweed (*Acroptilon repens*), and identify through a replicated study the most effective treatment method for controlling salt cedar in southern Nevada. Salt cedar (a tree species originating from Asia) and Russian knapweed (a creeping herbaceous perennial originating from Asia) are both listed by the state of Nevada as noxious weed species. The major benefits of this project would be restoration of the riparian woodland; habitat improvement for the Federally endangered southwestern willow flycatcher; noxious weed control; and fire risk abatement in the wildland urban interface (WUI) of the communities of Warm Springs and Moapa, Nevada through reduction in hazardous fuels. This project is conducted in cooperation with the Clark County Multiple Species Habitat Conservation Plan.

Comments on this preliminary EA are due by October 15, 2008. Comments can be submitted electronically or in writing. Electronic comment should be sent to the following email address: Carolyn_Ronning@blm.gov. Written comments should be addressed to:

Bureau of Land Management, Las Vegas Field Office
C/O Carrie Ronning
4701 North Torrey Pines Drive
Las Vegas, NV 89130

Comments received for the preliminary EA will be incorporated to the greatest extent possible when finalizing the EA. The BLM would like to thank everyone who is reviewing this document to ensure that it is complete and comprehensive.

Sincerely,

Sarah Peterson
Acting Assistant Field Manager
Renewable Resources

ENVIRONMENTAL ASSESSMENT
NV-052-2008-145
NEVADA

*Effectiveness Monitoring for Salt Cedar and Knapweed Control
on the Upper Muddy River Floodplain*

BUREAU OF LAND MANAGEMENT
Las Vegas Field Office

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PRELIMINARY

U.S.D.I. Bureau of Land Management
Environmental Assessment
EA Number: NV-052-2008-145
Date: September 30, 2008

TITLE / PROJECT TYPE: Effectiveness Monitoring for Salt Cedar and Knapweed Control on the Upper Muddy River Floodplain

BLM OFFICE: Las Vegas Field Office
4701 N. Torrey Pines Drive
Las Vegas, Nevada 89130

LOCATION OF PROPOSED ACTION: Warm Springs, Nevada on the BLM parcel formally known as the Perkins Ranch.

USGS TOPOGRAPHIC MAPS: The project area is located either completely or partially within the Moapa West USGS 7.5 min. Quadrangle map.

APPLICANT / PROPONENT: The Nature Conservancy (TNC)

1.0 INTRODUCTION

This document is prepared in compliance with the National Environmental Policy Act (NEPA). Its purpose is to analyze the impacts of the proposed action, alternatives, and recommend mitigation measures that would eliminate or lessen environmental impact. The action is tiered to and consistent with the *Las Vegas Resource Management Plan and Final Environmental Impact Statement* (RMP) (BLM, 1998) and the *Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact* (PEIS) (BLM, 2007). The action is in conformance with the *Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement* (MSHCP) (Clark County, 2000) and the *Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem*. (USFWS, 1996).

2.0 PURPOSE AND NEED FOR THE ACTION

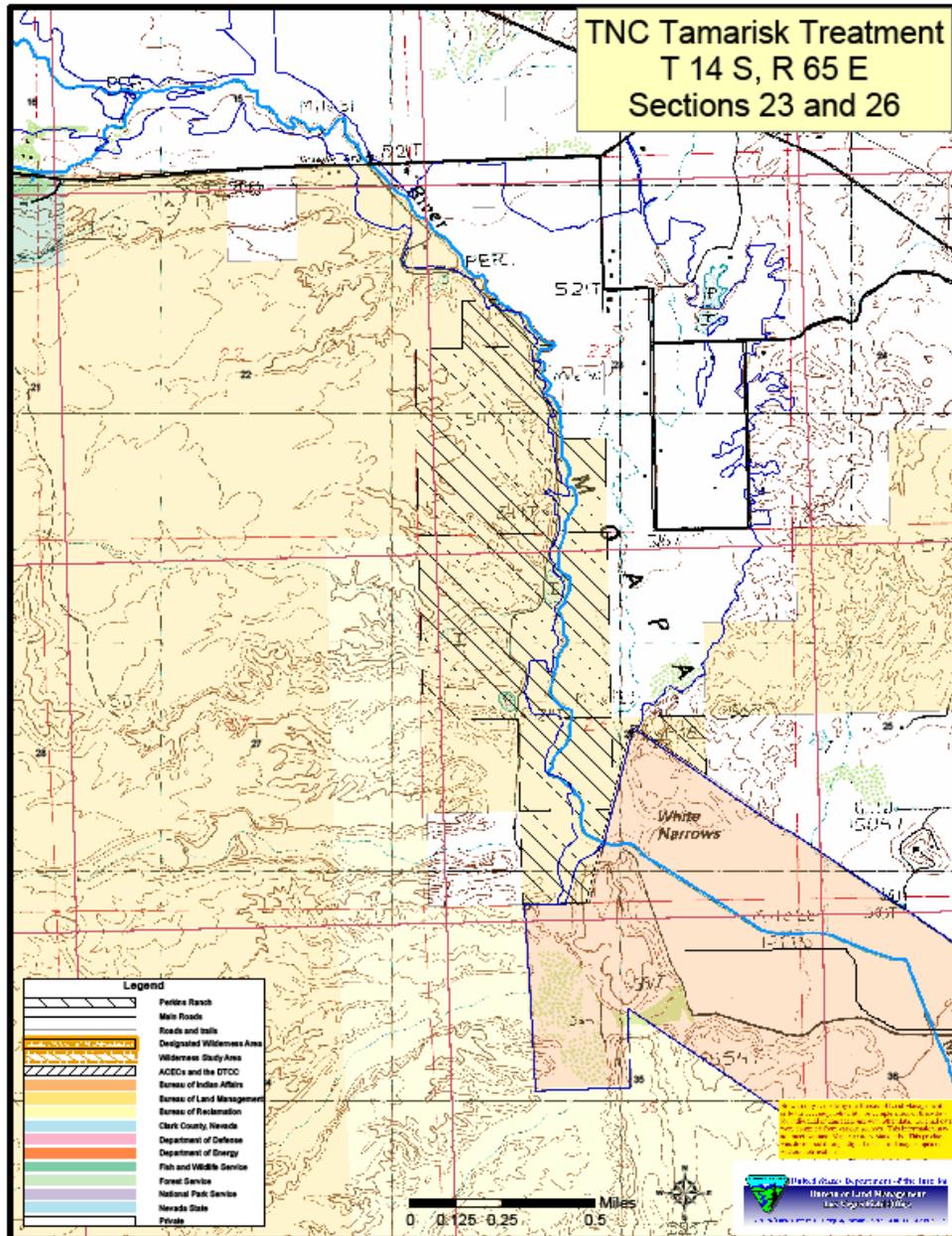
The Nature Conservancy (TNC) is proposing to conduct experimental manipulations of riparian vegetation along the Muddy River to reduce site dominance of two plant species, salt cedar (*Tamarisk* spp.) and Russian knapweed (*Acroptilon repens*), and identify through a replicated study the most effective treatment method for controlling salt cedar in southern Nevada. Salt cedar (a tree species originating from Asia) and Russian knapweed (a creeping herbaceous perennial originating from Asia) are both listed by the state of Nevada as noxious weed species.

The major benefits of this project would be restoration of the riparian woodland; habitat improvement for the Federally endangered southwestern willow flycatcher; noxious weed control; and fire risk abatement in the wildland urban interface (WUI) of the communities of Warm Springs and Moapa, Nevada through reduction in hazardous fuels.

2.1 Proposed Alternative (Alternative A)

Experimental manipulations would be conducted in Warm Springs, Nevada on the BLM parcel formally known as the Perkins Ranch (Figure 1).

Figure 1. Project location



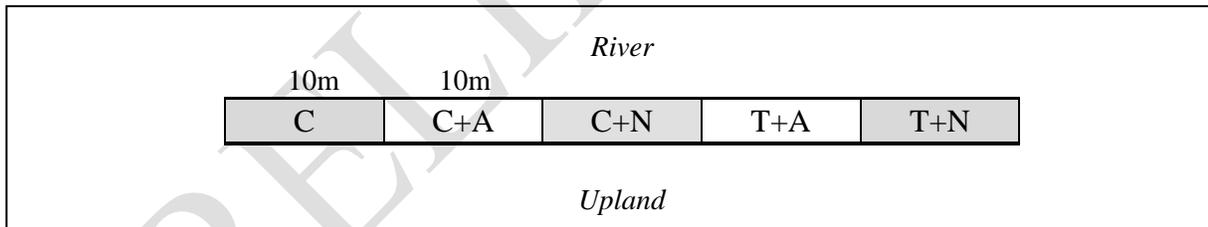
Treatments would involve control of salt cedar and knapweed in the 100-yr floodplain of the Muddy River using mechanical and chemical control methods. Treated plots would be revegetated with a native seed mix recommended by BLM. Variables for vegetation and soil chemistry will be sampled before and after manipulations.

Table 1. Description of property and area to be treated.

Public Land (Perkins Ranch) Managed by BLM (acres)	Acres in 100-yr floodplain	Number of shoreline miles	Maximum area disturbed (shoreline X 30 m) (acres)	Minimum area disturbed (acres)
407.81	191.63	1.08	35.94962	11.856

The proposed manipulations will affect portions of the property immediately adjacent to the river (from water's edge to above the river's bank). Experimental manipulations will be conducted in replicate, rectangular plots 10-20-m long and parallel to the river (Figure 2). The width of each replicate plot will vary with the extent of salt cedar infestation from the river's edge. It is anticipated that between 11 and 36 acres of the 407-acre property would be treated.

Figure 2. Example of treatment combination randomization for one block (in reality, several blocks will be used with different a randomization per block). Legend: C = no removal control (hereafter control); T = chainsaw felling followed by painting stumps with the herbicide Tahoe® and spraying knapweeds with Transline® [hereafter traditional]; N = natural regeneration of plants (do-nothing control); and A = artificial native plant restoration using different species (recommended BLM seed mix) and methods for the lower and upper riparian zones as accomplished by Nevada Division of Forestry (NDF) in the past.



Herbicides

The herbicides Tahoe 3® (Triclopyr Triethylamine Salt) and Tahoe 4® (Butoxyethyl Triclopyr), will be applied on salt cedar and Transline® (Chopyralid MEA Salt) will be applied on Russian knapweed in plots receiving herbicides, which is ½ of the plots. Herbicides with active ingredients of Triclopyr and Chopyralid were approved by the BLM in the PEIS (BLM, 2007). Herbicides will be applied by certified Nevada Department of Forestry (NDF) staff and inmates crews. Representatives of the Muddy River Regional Environmental Impact Alleviation Committee (MRREIAC) will coordinate the work of NDF crews but not apply herbicides or fell salt cedar themselves.

Tahoe 3 is approved for use near water and will be used on vegetation growing within a minimum 6-foot buffer of the Muddy River. Tahoe 4 will be used outside the buffer area. These

herbicides would be applied by either backpack spraying or painting, whichever is applicable in the area, on freshly cut salt cedar. Girdled salt cedar will be wicked with Tahoe to prevent resprouting and retreating plots. Application rates will be 50-50 oil and pesticide with dye added. Volume of herbicide used per acre will remain within the limits as described on the herbicide labels. Use of Tahoe 4 will not exceed the maximum use rate of 6 qt of Tahoe 4 (6 pounds acid equivalent [ae] of triclopyr) per acre per year. Use of Tahoe 3 will not exceed the maximum use rate of 2 gallons of Tahoe 3 (6 pounds ae of triclopyr) per acre per year. Both of these herbicides have been used previously by MRREIAC and NDF crews, and work well. Water testing has been done after their use, and there has never been any residue from the herbicide in the water.

Transline will be used on knapweed and has been selected as it is safer to use in areas where sensitive species and water quality are of concern than the more effective herbicide Tordon®. The herbicide is applied by spraying. Application rates will be 50-50 oil and pesticide with dye added. Transline use will not exceed 1.33 pints per acre per year.

Summary and Timeline of Sampling Methods

Experimental plots will be marked with rebar and flagged prior to sampling and treatment. Pre-treatment sampling will be initiated in 2008. Sampling will be carried out using non-destructive methods, consisting of measurement of understory and mid-story vegetation cover and height, tree height and cover, and collection of soil samples for chemical analyses with a 7-cm diameter soil auger pressed to a depth of 10cm. After plots are sampled, control and revegetation treatments will be applied as soon as possible. Treatments will also be applied in 2009. Depending on treatment dates, plots will be resampled once or twice after treatment application. TNC anticipates continuing the study into subsequent funding cycles to measure longer term responses and to increase replication. Accordingly, TNC requests that the experimental sites be provided some protection from other manipulations until this study is completed.

Experimental manipulations are proposed to occur on the following private properties: The Nature Conservancy's Alamo, Shirley-Perkins, and Henry properties; Hidden Valley Dairy, and Omer properties. TNC may also remove salt cedar and knapweed from adjacent small private properties while treating the experimental areas to minimize the reestablishment of these species. These actions on private property are not within the scope of this proposed action as they will not occur on federally managed lands.

2.2 No Action Alternative

Under the no action alternative, experimental manipulations would not take place on BLM managed public lands and the affected environment would be left in its current condition at this time. TNC may still conduct experimental manipulations on private property.

2.3 Alternatives Dropped From Consideration

TNC's original proposed action was dropped from consideration as the research design included using domestic goats to control salt cedar within 9 miles of the Arrow Canyon desert bighorn sheep herd (*Ovis canadensis nelsoni*). This alternative was identical to the proposed action above with the addition of replicated plots which would receive goat grazing treatments to suppress salt cedar and knapweed. This alternative created an unacceptable risk of transmission of Johne's

Disease (*Mycobacterium paratuberculosis*) and other domestic ungulate diseases from the domestic goats to the wild bighorn sheep herd. There is a long history of large-scale die-offs in bighorn sheep across Canada and the United States (greater than 50% in less than 12 months), many of them in association with domestic animal contact. The proximate cause can usually be attributed to bacterial, viral or parasitic diseases (Garde, 2005). To guard against this potential outcome, TNC removed the use of goats from their proposal.

2.4 Conformance With Land Use Plans

The proposed action is in conformance with Federal regulations and BLM policies. The action is tiered off of the RMP (BLM, 1998) and is consistent with this document.

RP-1-f: Use integrated weed management techniques to control and eradicate tamarisk, such as burning, chemical, biological or mechanical treatments, where potential for treatment is good. Rehabilitate the area with native species to help reduce the potential for tamarisk re-establish and improve ecosystem health.

SS-1-a: Improve approximately 400 acres of aquatic and riparian habitat on the Virgin River, Muddy River, and Meadow Valley Wash from its existing poor-to-fair condition to good-or-better condition by replacing Tamarisk with native species.

VG1: Maintain or improve the condition of the vegetation on public lands to a Desired Plant Community or to a Potential Natural Community.

The action is in conformance with the MSHCP (Clark County, 2000).

BLM(9): BLM will cooperate with the I & M Committee and through the Adaptive Management Plan participate in the identification, development, and implementation of research projects located on Public Lands. Emphasis shall be placed on research that addresses management concerns and the conservation of covered and evaluation species.

BLM(20): Improve aquatic, riparian and mesquite woodland habitat including Meadow Valley Wash.

The action is in conformance with the *Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem* (USFWS, 1996).

13. Develop and implement habitat restoration/management plans: "...fire prevention measures throughout riparian habitat areas associated with occupied habitat (i.e., palm tree thinning, revegetation with native species, etc.)..."

The action is in conformance with the *Final Recovery Plan Southwestern Willow Flycatcher (Empidonax traillii extimus)* (USFWS, 2002).

III.C.1 Habitat Protection and Restoration - Improving and/or reducing the degradation of riparian and wetland habitats

2.5 Relevant Statutes, Regulations, and Guidelines

The following is a list of laws, regulations, executive orders, and other guidelines that may apply to the proposed project.

- National Environmental Policy Act of 1969
- Protection and Enhancement of Environmental Quality [Executive Order (EO) 11514, as amended by EO 11991]
- Federal Land Policy and Management Act, as amended [43 US Code (USC) 1701, et. Seq.]
- Federal Noxious Weed Act of 1974, as amended [7USC 2814]
- Endangered Species Act, as amended [16 USC 1531-1543]
- Migratory Bird Treaty Act of 1918, as amended [16 USC 703 et. Seq.]
- Clean Water Act, as amended [33 USC 125]
- Protection of Wetlands [EO 11990]
- Floodplain Management [EO 11988]

3.0 AFFECTED ENVIRONMENT

3.1 General Setting

The Perkins Ranch was previously owned by Nevada Power Company and held in trust by The Conservation Fund. BLM purchased the property in 2003 as an Environmentally Sensitive Land Acquisition under the Southern Nevada Public Lands Management Act. The property includes approximately 2 linear miles of the Muddy River and 37 acres of riparian habitat infested with salt cedar. The remainder of the property consists of Mojave Desert scrub uplands containing limestone cliffs cut by wash systems that feed into the floodplain from the Arrow Canyon Range to the west.

The project area occurs within the floodplain of the Muddy River along a channelized, quick-moving portion of the river. The dominant vegetation includes salt cedar and arrow weed (*Pluchea sericea*). Other vegetation includes desert wild grape (*Vitis girdiana*), mule fat (*Baccharis salicifolia*), mesquite (*Prosopis* spp.), saltbush (*Atriplex* spp.), and desert willow (*Salix* sp.). There are no sandbars or established wetland vegetation, such as cattail (*Typha* spp.) or bulrush (*Scripus* sp.).

Figure 3. Photograph of Perkins Ranch



3.2 Affected Environment Summary

Table 2 below summarizes the environmental attributes that have been reviewed, whether they may to be affected by the Preferred Alternative, and the rationale. Elements that would not be affected will not be discussed further in this environmental assessment.

Table 2. Summary table of affected environmental attributes.

Supplemental Authorities	Affected?		Rationale
	Yes	No	
ACECs		X	No designated Areas of Critical Environmental Concern are found within the project area.
Air Quality		X	The Preferred Alternative would not result in emissions that exceed Prevention of Significant Deterioration thresholds or National Ambient Air Quality Standards. Herbicide applications would be restricted to times when wind is not present to ensure herbicides do not drift onto plants not intended for treatment or off-site.
Cultural Resources		X	The Preferred Alternative is exempt from Section 106 of the National Historic Preservation Act.
Environmental Justice		X	There will be no human health or environmental effects on minority populations and low-income populations
Farm Lands, Prime/Unique		X	The Preferred Alternative occurs on environmentally sensitive public land, not available for farming.
Fish Habitat		X	The fish habitat found within the project area does not contain marine or anadromous fish species. Freshwater fish species are analyzed below under Threatened and Endangered Species
Floodplains		X	No alteration of the floodplain would occur.
Forest & Rangelands	X		The Preferred Alternative would remove nonnative trees within the riparian woodland and proposes to identify best methods to restore riparian woodlands infested by salt cedar and knapweed.

Migratory Birds	X		Short-term loss of perching and nesting sites, and disturbance from noise and human presence during treatments and monitoring. Long-term improvement of riparian woodlands which are habitat for migratory birds.
Native American Religious Concerns		X	The Preferred Alternative would have no effect to the setting of a traditional Cultural Property or historic district.
Noxious Weeds	X		The Preferred Alternative proposes to remove noxious weeds and identify best methods to control noxious weeds.
Threatened & Endangered Species	X		Herbicides pose risks to fish and wildlife. Accidental spills and direct spraying of organisms could kill or harm animals, or affect the health and behavior of animals. Fish and wildlife could also forage on vegetation that has been treated, or prey on other animals that have been exposed to herbicides, and be harmed. All of the herbicides pose some risk to non-target terrestrial and aquatic vegetation, and damage to these plants could adversely impact habitats used by fish and wildlife. The risk for adverse health effects to individual organisms would typically be greater for threatened, endangered, and other special status species than for secure species. Herbicide treatments that limit the spread of non-native plants in habitats occupied by special status species would benefit these vulnerable populations. Improvement of habitat near populations of special status species could also be extremely beneficial by providing suitable habitat for expansion of populations, perhaps aiding in their recovery.
Wastes Hazardous/Solid		X	No hazardous or solid wastes would be generated by the Preferred Alternative.
Water Resources and Quality	X		Effects to surface water would be minor, and herbicide concentrations in surface water should not exceed safe levels for human health. There is potential for herbicides to be transported in surface water and impact non-target vegetation and the BLM will use buffers to reduce or avoid this risk.
Wetlands and Riparian	X		Preferred Alternative would result in improvement of riparian woodlands through removal of nonnative species and restoration of native species to the community.
Wildland Fires	X		Removal of sale cedar and knapweed will reduce hazardous fuels. The Preferred Alternative would identify best methods for future hazardous fuels treatments on the Muddy River. Herbicide treatments that remove or facilitate removal of hazardous fuels from public lands would be expected to benefit the health of ecosystems in which natural fire cycles have been altered. Herbicide treatments should also reduce the incidence and severity of wildfires.
Wilderness		X	No wilderness is within or adjacent to the project area.

3.3 Forest and Rangelands

The Muddy River floodplain historically supported desert riparian habitat along the river bank bounded by mesquite woodlands. In the late 1800s, Mormon settlers populated the Moapa Valley. Over time streams were diverted and channelized for domestic and agricultural uses and new plant species, including salt cedar, were introduced to the ecosystem. Once introduced into the system, salt cedar replaced many native tree species and became the dominant species in the desert riparian habitat. (USFWS, 1996) Because salt cedar stands develop into dense thickets, sediment accumulated in their extensive root systems and promoted further salt cedar growth.

This may have contributed to the gradual narrowing of the river channel and loss of the native riparian woodland species along its course as the bank became increasingly dry.

3.4 Migratory Birds

Under the Migratory Bird Treaty Act of 1918 (MBTA) and subsequent amendments (16 U.S.C. 703-711), it is unlawful to take, kill, or possess migratory birds. A list of the 832 protected bird species can be found in 50 C.F.R. 10.13. A species qualifies for protection under the MBTA by meeting one or more of the following four criteria:

1. It (a) Belongs to a family or group of species named in the Canadian convention of 1916, as amended in 1996; (b) specimens, photographs, videotape recordings, or audiotape recordings provide convincing evidence of natural occurrence in the United States or its territories; and (c) the documentation of such records has been recognized by the AOU or other competent scientific authorities.
2. It (a) Belongs to a family of group of species named in the Mexican convention of 1936, as amended in 1972; (b) specimens, photographs, videotape recordings, or audiotape recordings provide convincing evidence of natural occurrence in the United States or its territories; and (c) the documentation of such records has been recognized by the AOU or other competent scientific authorities.
3. It is a species listed in the annex to the Japanese convention of 1972, as amended.
4. It is a species listed in the appendix to the Russian convention of 1976.

Migratory bird species that may utilize the project area include the following breeding birds: Gambel's quail (*Callipepla gambelii*), turkey vulture (*Cathartes aura*), red-shouldered hawk (*Buteo lineatus*), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), lesser nighthawk (*Chordeiles acutipennis*), Vermilion flycatcher (*Pyrocephalus rubinus*), Cassin's kingbird (*Tyrannus vociferans*); loggerhead shrike (*Lanius ludovicianus*), common raven (*Corvus corax*), verdin (*Auriparus flaviceps*), black-tailed gnatcatcher (*Poliophtila melanura*), northern mockingbird (*Mimus polyglottos*), phainopepla (*Phainopepla nitens*), Albert's towhee (*Pipilo alberti*), blue grosbeak (*Passerine caerulea*), red-winged blackbird (*Agelaius phoeniceus*), house finch (*Carpodacus mexicanus*), and lesser goldfinch (*Carduelis psaltria*).

3.5 Noxious Weeds

Noxious weeds are defined by the BLM as "A plant that interferes with management objectives for a given area of land at a given point in time." In addition, the State of Nevada defines noxious weeds as "Any species of plant which is, or liable to be, detrimental or destructive and difficult to control or eradicate..." (NRS 555.005) Noxious weeds are found throughout the Las Vegas Field Office. These plants tend to out-compete and displace native vegetation.

Weeds are dispersed through a variety of methods such as cattle, wild animals, and humans moving through the landscape as well as wind and water. Weeds tend to establish along the disturbed edges of roadways and are very easily distributed further along the roadways by vehicle and animal movement through existing weed infestations. Wind and water further distribute

weed seeds away from source populations into areas that humans visit less often. As weeds displace native vegetation, both cover and food are lost to native animals found in those areas.

Nevada has three categories of noxious weeds:

Category "A": Weeds not found or limited in distribution throughout the state; actively excluded from the state and actively eradicated wherever found; actively eradicated from nursery stock dealer premises; control required by the state in all infestations.

Category "B": Weeds established in scattered populations in some counties of the state; actively excluded where possible, actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur.

Category "C": Weeds currently established and generally widespread in many counties of the state; actively eradicated from nursery stock dealer premises; abatement at the discretion of the state quarantine officer.

(NRS 555.005-201)

Russian knapweed is listed by Nevada as a "Category B" noxious weed and salt cedar is listed as a "Category C" noxious weed. Both have been documented within the project area and would be removed on certain treatment plots through the proposed action.

Salt cedar was introduced to the western U.S. as an ornamental shrub in the early 1800s. It establishes in disturbed and undisturbed streams, waterways, bottomlands, banks and drainage washes of natural or artificial waterbodies, moist rangelands and pastures, and other areas where seedlings can be exposed to extended periods of saturated soil for establishment. Salt cedar can grow on highly saline soils containing up to 15,000 parts per million soluble salt and can tolerate alkali conditions. Salt cedars are fire-adapted species and have long tap roots that allow them to intercept deep water tables and interfere with natural aquatic systems. Salt cedar disrupts the structure and stability of native plant communities and degrades native wildlife habitat by outcompeting and replacing native plant species, monopolizing limited sources of moisture, and increasing the frequency, intensity and effect of fires and floods. Although it provides some shelter, the foliage and flowers of salt cedar provide little food value for native wildlife species that depend on nutrient-rich native plant resources. (Plant Conservation Alliance, 2008)

Russian knapweed was introduced to the U.S. from central Asia in the early 1900s unintentionally as a contaminant in seed supplies. It is aggressively competitive, facilitating rapid colonization and development of dense stands; crowding out native species. Infestations can be extremely long-lived due to extensive root and rhizome systems. Russian knapweed is toxic to horses, causing nigropallidal encephalomalacia or "chewing disease" when sufficient quantities are consumed. Under most circumstances livestock will avoid grazing Russian knapweed because of its bitter taste. (California Department of Food and Agriculture, 2008)

3.6 Threatened and Endangered Species

The project area is potential habitat for two species listed under the Endangered Species Act and

an unlisted population of a species listed elsewhere in its range.

Table 3. Threatened and Endangered Species in the proposed project area.

Species Type	Common Name	Scientific Name	Status
Bird	Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Federally Endangered
Fish	Moapa dace	<i>Moapa coriacea</i>	Federally Endangered
	Virgin River Chub	<i>Gila seminude</i>	Federally Endangered on Virgin River. The Muddy River population was not listed.

Southwestern willow flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher subspecies was listed as endangered in March 29, 1995. Its breeding habitat occurs in dense riparian habitats in southwestern North America, and winters in southern Mexico, Central America, and northern South America. Approximately 900 to 1,100 pairs exist. (USFWS, 2002)

The southwestern willow flycatcher breeds in relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands, including lakes. Most of these habitats are classified as forested wetlands or scrub-shrub wetlands. Its breeding range includes far western Texas, New Mexico, Arizona, southern California, southern portions of Nevada and Utah, southwestern Colorado, and possibly extreme northern portions of the Mexican States of Baja California del Norte, Sonora, and Chihuahua. Habitat requirements for wintering are not well known, but include brushy savanna edges, second growth, shrubby clearings and pastures, and woodlands near water.

The southwestern willow flycatcher has experienced extensive loss and modification of breeding habitat, with consequent reductions in population levels. Destruction and modification of riparian habitats have been caused mainly by: reduction or elimination of surface and subsurface water due to diversion and groundwater pumping; changes in flood and fire regimes due to dams and stream channelization; clearing and controlling vegetation; livestock grazing; changes in water and soil chemistry due to disruption of natural hydrologic cycles; and establishment of invasive non-native plants. Concurrent with habitat loss have been increases in brood parasitism by the brown-headed cowbird (*Molothrus ater*), which inhibit reproductive success and further reduce population levels.

Moapa dace (*Moapa coriacea*)

The Moapa dace was listed as endangered on March 11, 1967 (32 *Federal Register* 4001). It occupies approximately 9.5 kilometers (6 miles) of stream habitat in five thermal headwater spring systems and the main stem of the upper Muddy River, Clark County, Nevada. Critical habitat has not been designated. A range-wide survey documented 3,841 adult Moapa dace in August 1994. The Muddy River ecosystem is also inhabited by seven aquatic species of special concern (three fish, two snails, and two insects). (USFWS, 1996)

Adult Moapa dace inhabit the main stem Muddy River, but only successfully reproduce in tributary thermal spring outflows (30~32° Celsius; 86~89° Fahrenheit). Larval and juvenile dace occur in low- to moderate-velocity areas in the spring outflows. Moapa dace are omnivorous drift feeders. Principle threats to the species are habitat alterations which have eliminated access to and/or destroyed spawning, nursery, and foraging areas; water loss; impoundments; and introductions of nonnative fishes and parasites.

Virgin River chub (*Gila seminuda*)

The Virgin River chub was proposed for listing as endangered, with critical habitat, on August 23, 1978 (43 FR 37668). This proposal was withdrawn on September 30, 1980 in accordance with the 1978 amendments to the Act requiring proposals pending for more than two years be withdrawn (45 FR 64853). A new proposal for listing as endangered, with critical habitat, was published on June 24, 1986 (51 FR 22949). The Virgin River chub was listed as endangered on August 24, 1989 (54 FR 35305). This listing covered only the Virgin River, the known range of the chub, then considered a subspecies of roundtail chub (*Gila robusta seminuda*). On July 24, 1995, based on new taxonomic information, the U.S. Fish and Wildlife Service (USFWS) proposed changing the species from a subspecies to a full species (*Gila seminuda*). Critical habitat for the Virgin River chub was proposed with that for the woundfin (*Plagopterus argentissimus*) in 1995 and a final rule was published in 2000. The Virgin River Fishes Recovery Plan (USFWS, 1995) is the recovery plan for the Virgin River chub. Critical habitat for the Virgin River chub includes the Virgin River and its 100-year floodplain from the Virgin River confluence with La Verkin Creek in Utah to Halfway Wash in Nevada.

The Virgin River chub occurs in the Virgin River from Pah Tempe Springs in Utah to at least the Arizona-Nevada border. Historically, Virgin River chub were found in the lower Virgin River in Nevada down as far as the confluence with the Colorado River, but few have been found recently. Considered an abundant species in the early 1900's, Virgin River chub are now uncommon to rare throughout the occupied range. Most recent records are from the reach of the Virgin River in Arizona. Sampling data for the Virgin River chub is not as definitive as for the woundfin, in part because the methodology used is not the most effective for this species. Declines in species population are attributed to dewatering and subsequent habitat changes in the Virgin River, and non-native fish introductions.

The Muddy River population of the Virgin River chub is not currently protected under the Act. At the time of listing, the Muddy River chub was considered a separate subspecies of roundtail chub from the Virgin River chub. More recent taxonomic information supports the Muddy River chub as a distinct population of *Gila seminuda*. A status review for the Muddy River chub population was initiated in 1995.

3.7 Water Resources and Quality

The Muddy River is located in northeastern Clark County, Nevada. The river originates from numerous thermal springs [30~32° Celsius (°C), 86~89.6° Fahrenheit (°F)] in an area known as Warm Springs. Historically, the river flowed 48.4 kilometers (km) [30 miles (mi)] into the Virgin River, a Colorado River tributary. However, when Hoover Dam was completed in 1935, the lower 8 km (5 mi) of the Muddy River were subsequently flooded by Lake Mead. The remaining riverine habitat has an average gradient of 1.6 meters per km (8.45 feet per mi) (Cross, 1976).

Total discharge from the headwater springs is nearly constant at approximately 1.3 cubic meters per second (m³/sec) [45.9 cubic feet per second (cfs)] (Eakin 1964). However, flow in the main stem Muddy River varies with precipitation events, seasonal water diversions, groundwater recharge, vegetation transpiration, evaporation, and irrigation return flows. Before reaching Lake Mead, nearly 75 percent of the annual inflow is lost to diversions, evaporation, and transpiration [Soil Conservation Service (SCS) 1993].

Water quality standards for the portion of the Muddy River along the project area are found in *NAC 445A.210 Muddy River at Glendale Bridge*. ([NRS 445A.425](#), [445A.520](#)).

Table 4. Standards of Water Quality for the Muddy River. Control Point at Glendale Bridge. The limits of this table apply from the Glendale Bridge upstream to the river source.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES
Temperature °C - Maximum ΔT^a	$\Delta T = 0^\circ\text{C}$	Nov.-Jun. : $\leq 21^\circ\text{C}$ Jul.-Oct. : $\leq 32^\circ\text{C}$ $\Delta T \leq 2^\circ\text{C}$	Aquatic life. ^b
pH Units	—	S.V. : 6.5 - 9.0 $\Delta\text{pH} : \pm 0.5 \text{ Max.}$	Propagation of wildlife, ^b aquatic life, ^b recreation not involving contact with the water, irrigation, watering of livestock, municipal or domestic supply and industrial supply.
Total Phosphates (as P) - mg/l	—	A-Avg. : ≤ 0.1	Aquatic life, ^b recreation not involving contact with the water, and municipal or domestic supply.
Nitrogen Species (N) - mg/l	Total Nitrogen A-Avg. : ≤ 1.3 S.V. : ≤ 1.4	Nitrate S.V. : ≤ 10 Nitrite S.V. : ≤ 1.0	Municipal or domestic supply, ^b aquatic life, recreation involving contact with the water, watering of livestock, propagation of wildlife and recreation not involving contact with the water.
Total Ammonia (as N) - mg/l	—	f	Aquatic life. ^b
Dissolved Oxygen - mg/l	—	S.V. : ≤ 5.0	Aquatic life, ^b recreation not involving contact with the water, propagation of wildlife, watering of livestock, and municipal or domestic supply.
Turbidity - NTU	—	e	Aquatic life ^b and municipal or domestic supply.
Color - PCU	—	d	Aquatic life ^b and municipal or domestic supply.
Total Dissolved Solids - mg/l	—	c	Municipal or domestic supply, ^b irrigation and watering of livestock.
Alkalinity (as CaCO ₃) - mg/l	—	less than 25% change from natural conditions	Aquatic life ^b and propagation of wildlife.
Fecal Coliform - No./100ml	—	A.G.M. : ≤ 1000 S.V. : ≤ 2000	Recreation not involving contact with the water, ^b municipal or domestic supply, ^b irrigation, propagation of wildlife and watering of livestock.
E coli - No./100ml Annual Geometric Mean	—	≤ 630	Recreation not involving contact with the water. ^b

- Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
- The most restrictive beneficial use.
- The salinity standard for the Colorado River System is specified in [NAC 445A.143](#).
- Increase in color must not be more than 10 PCU above natural conditions.
- Increase in turbidity must not be more than 10 NTU above natural conditions.
- The ambient water quality criteria for ammonia are specified in [NAC 445A.118](#).

3.8 Wetlands and Riparian

As stated above (under 3.3 Forest and Rangelands), the Muddy River historically supported desert riparian habitat along the river bank bounded by mesquite woodlands. Riparian woodlands were degraded over time by human activities which diverted and channelized the river for domestic and agricultural uses. Channelization of the Muddy River resulted in loss of native willow trees along its course as the bank became increasingly dry. New plant species, including salt cedar, were introduced through agricultural and ornamental practices and over time replaced many native tree species and became the dominant species in the desert riparian habitat.

Channelization also removed any historic wetlands that would have been present in oxbow backwaters isolated from the main river channel as it moved within the floodplain or in low-lying areas where the river would widen and slow down. No wetlands are present today.

3.9 Wildland Fires

Historically, fire occurrence in the Mojave Desert has been low. When fires did occur they were generally small due to large interstitial spaces between shrubs. In the past few years, the Mojave region has seen an increase in both fire frequency and fire size. The year 2005 was a particularly bad year for the Mojave, with over 1 million acres burned in fires throughout Southern Nevada alone. This increase in fire frequency and size has been primarily attributed to the proliferation of invasive annual grasses. These grasses provide a continuous fuel bed within the interstitial spaces between shrubs as well as growing very thickly within and immediately around shrubs. Red brome (*Bromus rubens*) and Mediterranean grass (*Schizomous* spp.) are the primary species that are contributing to the increase in fires. (Brooks, et.al, 2006)

Salt cedar and other invasive weed species like Russian knapweed, grow quickly and densely in riparian areas, changing the occurrence and behavior of fire when it is introduced through lightning strikes or human causes. Salt cedar stands develop into dense thickets. The species contributes to increased vertical canopy density, creating volatile fuel ladders that increase the likelihood of wildfire spread and impacts from high intensity heat. Salt cedar leaf litter also increases the frequency and intensity of fire and leaf litter has accumulated for many years wherever the salt cedar is found. The growth of these plants is much denser than the native plants, carrying fire through the riparian area until a large unvegetated wash or other fuel break stops its progression. Areas infested with salt cedar burn with high temperatures and high intensity, threatening the entire habitat and nearby property. (BLM, 2008)

4.0 ENVIRONMENTAL EFFECTS

4.1 Environmental Effects for the Proposed Action (Alternative A)

Environmental effects of vegetation treatments including use of herbicides were analyzed in Chapter 4 of the PEIS. Discussion below provides additional site and project specific analysis of the Proposed Action (Alternative A).

4.1.1 Forest and Rangelands

There will be a temporary negative impact to the riparian woodland on the treatment plots as

trees will be removed through manual and chemical treatments. Long-term, the project will result in a positive impact by introducing native species back into the woodland, increasing plant diversity and restoring native components of the plant community.

4.1.2 Migratory Birds

The proposed action will have a negative impact on migratory birds as it would remove salt cedar trees which provide perches and nesting sites. The loss of habitat would be temporary (2-3 years) while native willow and shrubs grow to replace the non-native salt cedar on the revegetated treatment plots. Loss of habitat during restoration of the native plant community will not remove all migratory bird nesting and perching sites as not all plots will be treated, so tree canopy will remain on the river.

In addition, noise and human activities during salt cedar and knapweed treatments and monitoring will disrupt birds causing them to flush from cover or completely avoid the area. This disturbance would only occur during daylight hours when the plots are being treated to remove salt cedar or knapweed, during restoration treatments, or during monitoring of treatment response. Temporary disturbance would be reduced as removal of salt cedar and knapweed would occur outside nesting season.

Restoration of the native plant community in species and structure would have a long term positive impact for migratory birds. Salt cedar infestations, such as are present on the Muddy River, have very little plant diversity. Increase in plant diversity and the complexity of the plant community structure resulting from creating patches of habitat with trees with a shrub understory will provide more niches for migratory bird species that would not utilize a salt cedar monoculture. Plots not treated with native seed would create habitat for bird species that utilize clearings and prefer access to water without dense cover. Bird species that utilize the salt cedar and Russian knapweed habitat would not have their habitat measurably reduced during the study as only certain plots will be treated.

To minimize impacts, BLM will require TNC and associate project personnel to comply with the Migratory Bird Treaty Act and avoid potential impacts to protected birds within the project area. A list of those protected birds are in 50 C.F.R. 10.13. The following measures will be required to avoid impacts:

- 1) To prevent undue harm, vegetation and chemical treatments shall be scheduled outside bird breeding season. In riparian areas, breeding season generally occurs between March 1st – August 30th.
- 2) If the project has to occur during the breeding season, then a qualified biologist must survey the area for nests prior to commencement of vegetation treatments. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests (containing eggs or young) are found, an appropriately-sized buffer area must be avoided until the young birds fledge. No vegetation removal may occur between May 1 to August 31 to ensure take of southwestern willow flycatcher nests does not occur.

4.1.3 Noxious Weeds

Southern Nevada rangelands are being impacted by the presence of invasive, non-native vegetation (weeds). Weeds are seen as a major threat to ecosystem health in southern Nevada. The presence of weeds in any landscape increases the inter-specific competition for resources as in most situations weeds out-compete native plants and displace them.

The Las Vegas Field Office has prepared the Noxious Weed Plan (BLM, 2006) that provides guidance for an active integrated weed management program using best management practices (BMP). The BMPs originated from a cooperative effort between BLM and other Federal agencies. At a national level, the BLM completed the PEIS completed which analyzes the effects of using herbicides for treating vegetation on public lands in the western U.S. These lands include Oregon and California Land Grant lands, Coos Bay Wagon Road lands, Areas of Critical Environmental Concern, and lands administered by the BLM through its National Landscape Conservation System, such as Wilderness Study Areas, designated Wilderness Areas, National Monuments, National Conservation Areas, Wild and Scenic Rivers, and National Recreation Areas. The decision in the PEIS was to: 1) approve the herbicide active ingredients assessed and analyzed under the Preferred Alternative in the PEIS for use on public lands administered by the BLM in 17 western states, including Alaska, and 2) approve the use of the scientific assessment protocol to guide the analytical methodology for consideration of the use or non-use of herbicides by the BLM. These decisions are supported by herbicide treatment standard operating procedures (SOPs) and mitigation measures to ensure that the natural and human environment are protected during implementation of herbicide treatments (BLM, 2007).

The proposed action will result in better knowledge on treatment of salt cedar and Russian knapweed in the Mojave Desert. The results will be scientifically credible due to the replicated design and will inform BLM on the most effective methods to control these species within riparian woodlands in southern Nevada. This knowledge can inform future BLM decisions. On a localized scale, the proposed action will have a positive impact as it will reduce occurrence of these noxious weeds on the treatment plots, reducing the density of these weeds on the acquired Perkins Ranch property.

To minimize impacts, BLM will require TNC and associate project personnel to comply with the following project specific stipulations that will attempt to control NV listed noxious weeds on this project.

- 1) All purchased seed must be tested by a certified seed lab and the results approved by BLM prior to application. Any seed substitutions must be approved by BLM.
- 2) TNC shall coordinate project activities with the BLM Weed Coordinator (702-515-5000) regarding any proposed herbicide treatment. The project proponent shall prepare, submit, obtain and maintain a pesticide use permit (PUP) for the proposed action.
- 3) Herbicide active ingredients and formulations shall be applied for uses, and at application rates, specified on the herbicide product label. TNC will comply with changes in label directions and will comply with all state registration requirements.
- 4) TNC shall limit the size of any vegetation and/or ground disturbance to the absolute

minimum necessary to perform the activity safely and as designed. TNC will avoid creating soil conditions that promote weed germination and establishment.

- 5) TNC shall begin project operations in weed free areas whenever feasible before operating in weed-infested areas.
- 6) TNC shall locate equipment storage, machine and vehicle parking or any other area needed for the temporary placement of people, machinery and supplies in areas that are relatively weed-free. The project proponent shall avoid or minimize all types of travel through weed-infested areas or restrict major activities to periods of time when the spread of seed or plant parts are least likely.
- 7) BLM or TNC shall determine equipment-cleaning sites (if equipment is infested with weed seeds, plant parts or mud and dirt). Project related equipment and machinery (this especially includes the nooks and crannies of undercarriages and chain saws) will be cleaned using compressed air or water to remove mud, dirt and plant parts before moving into and from relatively weed-free areas. Seeds and plant parts will be collected, bagged and deposited in dumpsters destined for local landfills, when practical.
- 8) Project workers shall inspect, remove, and dispose of weed seed and plant parts found on their clothing and personal equipment, bag the product and dispose of in a dumpster for deposit in local landfills. Disposal methods may vary depending on the project. If you have questions consult with the Southern Nevada District Noxious Weed Coordinator.
- 9) TNC shall post treatment areas as restoration sites to inform the public and reduce unintended disturbance of the restoration sites.

4.1.4 Threatened and Endangered Species

Although the project area is below the Reid Gardner Station Dam on the Muddy River, Moapa dace could be present in the river segment that runs through the former Perkins Ranch. The river reach is not surveyed for dace but is within its historical range. If Moapa dace are present in this reach, they probably occur at very low numbers. Virgin River chub have been observed in the stretch of the Muddy River flowing through the project area.

Southwestern willow flycatchers have not been detected in the project area but breed nearby on the Warm Springs Ranch. Although the project will remove habitat that may be used by flycatchers, in the long term salt cedar removal may improve habitat for this species. The project will minimize potential impact to the flycatcher by removing vegetation outside of the breeding season. This experiment will increase knowledge about methods to use for restoring native riparian vegetation once salt cedar has been removed. This has the potential to help improve flycatcher habitat in many locations.

The BLM conducted informal consultation with U.S. Fish and Wildlife Service (USFWS) in 2008. The USFWS concurred that the proposed action is not likely to adversely affect the Moapa dace and southwestern willow flycatcher if the following minimization measures proposed by BLM are followed. With higher populations than the Moapa dace, no adverse effects to the Virgin River chub are expected to occur with implementation of these measures.

Minimization measures:

- 1) Existing trails and roads would be used to access the project area.
- 2) Necessary equipment for treatment will be hand carried to specific treatment sites.
- 3) Riparian vegetation is utilized by migratory bird species for foraging, nesting and cover. All project personnel must comply with the Migratory Bird Treaty Act and avoid potential impacts to protected birds within the project area. A list of those protect birds are in 50 C.F.R. 10.13. The following measures describe the most effective measures to avoid impacts:
 - a. To prevent undue harm, habitat-altering projects or portions of projects should be scheduled outside bird breeding season. In riparian areas, breeding season generally occurs between March 1st – August 30th.
 - b. If a project that may alter any breeding habitat has to occur during the breeding season, then a qualified biologist must survey the area for nests prior to commencement of vegetation treatments. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests (containing eggs or young) are found, an appropriately-sized buffer area (species dependent) must be avoided until the young birds fledge. No vegetation removal may occur between May 1 to August 31 to ensure take of southwestern willow flycatcher nests does not occur.
- 4) All treated salt cedar and knapweed will be removed from Perkins Ranch and disposed of properly.
- 5) The herbicide application process would involve a) backpack spraying with low volume tips for moderate soaking of the plants and/or b) wick applicators for highly targeted applications. Applicators would exercise caution during treatments and implement best management practices to minimize overspray, drift, run-off, or leaching of herbicides to waters adjacent to treatment areas.
- 6) Tahoe 4 is toxic to fish. It will only be used in upland areas of the projects site, a minimum of 6 feet from the water. Tahoe 3 will be used within the 6-foot buffer, instead.
- 7) Application of Tahoe and Transline will be in strict accordance with label directions for these products. The manufacturer's recommended application rate will be followed to avoid possible harmful effects to native plants, wildlife, fish, and aquatic invertebrates.
 - a. All mixing and transfers of herbicides from one container to another will be done over a plastic tarp in an upland location at least 50 yards from riparian or wetland areas;
 - b. All personnel will use appropriate safety equipment (i.e., gloves, boots, respirator or mask, etc.) when transferring product;
 - c. A spill kit containing shovels and absorbent pads will be readily available to contain and soak up leakage or spills;
 - d. In the event of a spill, soil contaminated with product will be immediately excavated and placed in leak proof containers;

- e. Personnel applying the product will be instructed on the environmental hazards of the product, importance of keeping the product out of and away from the river, and notification and containment procedures if an accidental spill occurs;
- f. Empty containers will be disposed of according to label directions;
- g. Plastic disposal bags will be used to dispose of any waste materials that have been in contact with the product, such as gloves, boots, coveralls, etc.
- h. Dye will be added to all herbicides to ensure good coverage and to avoid repeat applications.
- i. To avoid the consequences of overspray onto native plant species or onto water surfaces, spraying activities will not be conducted on windy days, or will be ceased if windy conditions arise (winds > 3 mph);
- j. Chemical application will not be conducted if precipitation is forecast within 72 hours. Application will be suspended prior to a precipitation event within the period of time specified by the chemical label, but not less than 24 hours.
- k. Should accidental spills of any herbicides occur, all application will cease immediately and appropriate spill containment and clean up procedures will ensue. Herbicides are toxic in concentrated form; therefore, should any product be accidentally spilled, flushed, or washed into the river, all application will cease immediately. Surveys will be performed immediately downstream of the application site(s) at increments of 150 feet. The surveys will be conducted to examine the river for dead/dying fish and invertebrates. The surveys will continue downstream until no invertebrates or fish appear to be affected. The point downstream at which the toxic effects are no longer discernible will be documented and provided to the BLM and U.S. Fish and Wildlife Service.
- l. Applicators and equipment will be decontaminated at each site to prevent further spread of weeds.
- m. A qualified biologist will monitor fish and wildlife in selected treated areas both during and after herbicide treatments to ensure that no adverse effects occur. The BLM and U.S. Fish and Wildlife Service would be notified if adverse effects are observed.

4.1.5 Water Resources and Quality

Removal of vegetation through herbicide or mechanical means may increase sedimentation in the Muddy River as plant roots stabilize soil. Use of herbicides may also result in unintentional spills or movement of herbicides from upland sites into aquatic systems. Pollution results from herbicide concentrations that are elevated enough to impair water quality and the beneficial use of that water. Use of the herbicides Tahoe 3 and 4 and Transline on half of the plots may result in some unmeasurable amount of herbicide entering the river. The amount of herbicide used under the proposed action would not affect water quality of the Muddy River. Tahoe 3 will be adjacent to water and Tahoe 4 in other areas. Both of these herbicides have been used previously by MRREIAC and NDF crews on the Muddy River and water testing done after their use showed there has never been any residue from the herbicide in the water (per com. TNC) Transline

proposed for use on knapweed and has been selected as it is safer to use in areas where sensitive species and water quality are of concern than the more effective herbicide Tordon®. (Material Safety Datasheets are provided in Appendix B)

Vegetation treatments use can benefit water quality if vegetation removal reduces the risk of catastrophic fire. Treatment of upland areas to reduce fuel loading could contribute to long-term benefits to surface water quality by reducing the risk of high-intensity wildfires. In addition, the control invasive species in terrestrial systems could provide long-term benefits to water quality with the return of more stable soils, attenuated nutrient cycling, and return of normal fire cycles.

Minimization measures:

- 1) TNC shall monitor soil erosion on the treated plots. Certified weed free straw waddles or silt fences will be installed if erosion is occurring.
- 2) Establish appropriate (herbicide-specific) buffer zones to downstream water bodies, habitats, and species/populations of interest. Tahoe 4 is toxic to fish. It will only be used in upland areas of the projects site, a minimum of 6 feet from the water. Tahoe 3 will be used within the 6-foot buffer, instead.
- 3) Areas with potential for groundwater for domestic or municipal water use shall be evaluated through the appropriate, validated USEPA model(s) to estimate vulnerability to potential groundwater contamination, and appropriate mitigation measures shall be developed if such an area requires the application of herbicides and cannot otherwise be treated with nonchemical methods.
- 4) Application of Tahoe and Transline will be in strict accordance with label directions for these products. The manufacturer's recommended application rate will be followed to avoid possible harmful effects to water quality.
 - a. All mixing and transfers of herbicides from one container to another will be done over a plastic tarp in an upland location at least 50 yards from riparian or wetland areas;
 - b. All personnel will use appropriate safety equipment (i.e., gloves, boots, respirator or mask, etc.) when transferring product;
 - c. A spill kit containing shovels and absorbent pads will be readily available to contain and soak up leakage or spills;
 - d. In the event of a spill, soil contaminated with product will be immediately excavated and placed in leak proof containers;
 - e. Personnel applying the product will be instructed on the environmental hazards of the product, importance of keeping the product out of and away from the river, and notification and containment procedures if an accidental spill occurs;
 - f. Empty containers will be disposed of according to label directions;
 - g. Plastic disposal bags will be used to dispose of any waste materials that have been in contact with the product, such as gloves, boots, coveralls, etc.

- h. Dye will be added to all herbicides to ensure good coverage and to avoid repeat applications.
- i. To avoid the consequences of overspray onto water surfaces, spraying activities will not be conducted on windy days, or will be ceased if windy conditions arise (winds > 3 mph);
- j. Chemical application will not be conducted if precipitation is forecast within 72 hours. Application will be suspended prior to a precipitation event within the period of time specified by the chemical label, but not less than 24 hours.
- k. Should accidental spills of any herbicides occur, all application will cease immediately and appropriate spill containment and clean up procedures will ensue. Herbicides are toxic in concentrated form; therefore, should any product be accidentally spilled, flushed, or washed into the river, all application will cease immediately. Surveys will be performed immediately downstream of the application site(s) at increments of 150 feet. The surveys will be conducted to examine the river for dead/dying fish and invertebrates. The surveys will continue downstream until no invertebrates or fish appear to be affected. The point downstream at which the toxic effects are no longer discernible will be documented and provided to the BLM and U.S. Fish and Wildlife Service.

4.1.6 Wetlands and Riparian

Removal of salt cedar and knapweed would have a positive effect on the riparian woodland through reducing the occurrence of these species on the former Perkins Ranch and reducing the number of mature invasive plants that can produce seed and continue to degrade the quality of riparian habitat. The removal of salt cedar may allow increased erosion of the river's channelized banks in the future, allowing the river to widen and meander on the property. This possible alteration of the existing hydrology may allow for sediment deposition creating shallow slow moving areas or beaches which may become inhabited by spike rush (*Eleocharis* spp.) and other aquatic species found in the springs upstream or more common wetland species such as cattails (*Typha* spp).

4.1.7 Wildland Fires

Reduction in plant biomass on the treatment plots will reduce the fuel load on Perkins Ranch in patches that may slow fire spread following ignition from natural and man-caused actions such as lightning strikes or arson. TNC's experimental treatments will inform the methods of fuel reduction projects that BLM may propose in the future on the Muddy River with intended improvements to reduce the threat of wildland fire spreading to adjacent private property.

4.2 Environmental Effects for the No Action Alternative

4.2.1 Forest and Rangelands

Under the no action alternative, experimental manipulations would not take place on BLM managed public lands and the affected environment would be left in its current condition. Forest and rangeland on BLM managed lands would not be restored at this time and would continue to be dominated by salt cedar. It is anticipated that without active treatment, salt cedar and Russian knapweed would continue to spread along the Muddy River and BLM managed lands along the

river would continue to contribute to infestations of these weeds on any uninfested lands or treatment sites downstream.

4.2.2 Migratory Birds

Under the no action alternative, experimental manipulations would not take place on BLM managed public lands and riparian corridor would be left in its current condition. There would not be any temporary disturbance of migratory bird foraging, perching or nesting. Habitat condition would not improve and may continue to degrade as salt cedar and Russian knapweed continue to spread along the Muddy River. Untreated BLM managed lands along the river would continue to contribute to infestations of these weeds on any uninfested lands or treatment sites downstream.

4.2.3 Noxious Weeds

Under the no action alternative, experimental manipulations would not take place on BLM managed public lands and the affected environment would be left in its current condition at this time. Riparian habitat on the former Perkins Ranch would not be restored at this time and would continue to be dominated by salt cedar. It is anticipated that without active treatment, salt cedar and Russian knapweed would continue to spread along the Muddy River and BLM managed lands along the river would continue to contribute to infestations of these weeds on any uninfested lands or treatment sites downstream.

4.2.4 Threatened and Endangered Species

Under the no action alternative, experimental manipulations would not take place on BLM managed public lands and threatened and endangered species habitat would be left in its current condition. Without treatment, adjacent and downstream habitat may continue to degrade as weed infestations spread, replacing native vegetation. Recovery of Moapa dace and southwestern willow flycatchers would not be benefitted.

4.2.5 Water Quality

Under the no action alternative, experimental manipulations would not take place on BLM managed public lands and water quality would be left in its current condition. There would be decreases in risk to water quality associated with use of herbicides from activities on BLM managed lands, but risk to water quality may still occur if TNC uses herbicides on private property.

4.2.6 Wetlands and Riparian

Under the no action alternative, experimental manipulations would not take place on BLM managed public lands and the riparian habitat would be left in its current condition. Riparian habitat on BLM managed lands would not be restored at this time and would continue to be dominated by salt cedar. It is anticipated that without active treatment, salt cedar and Russian knapweed would continue to spread along the Muddy River and BLM managed lands along the river would continue to contribute to infestations of these weeds on any uninfested lands or treatment sites downstream. No wetland habitat would be created.

4.2.7 Wildland Fires

Under the no action alternative, experimental manipulations would not take place on BLM managed public lands and the risk of wildland fire would not be reduced. Salt cedar and other invasive weed species like Russian knapweed, would continue to contribute to increased vertical canopy density, creating volatile fuel ladders that increase the likelihood of wildfire spread and impacts from high intensity heat. Salt cedar leaf litter also increases the frequency and intensity of fire and leaf litter has accumulated for many years wherever the salt cedar is found. Areas infested with salt cedar burn with high temperatures and high intensity, threatening the entire habitat and nearby private property.

4.3 Cumulative Effects

The National Environmental Policy Act and its implementing guidelines require an assessment of the proposed project and other projects that have occurred in the past, are occurring in the present, or are likely to occur in the future, which may together have cumulative impacts that go beyond the impacts of the proposed action itself. The purpose of this cumulative effects analysis is to determine if the effects of TNC vegetation treatments on BLM managed lands have the potential to interact or accumulate over time and space, either through repetition or when combined with other effects, and under what circumstances and to what degree they might accumulate.

The scope of cumulative effects analysis for this environmental assessment looked at treatments that would occur under the scope of the PEIS (about 10 years) and the time for treated areas to fully realize the results of treatment in terms of meeting management objectives and desired vegetative conditions (up to 25 years or longer for some treatments). The geographic scope was limited to reasonable and foreseeable actions within the Muddy River floodplain.

The cumulative effects analysis assumes that Standard Operating Procedures, monitoring measures and mitigation developed by the BLM in the PEIS and through consultation with U.S. Fish and Wildlife Service would be adopted to protect environmental and socioeconomic resources on public lands. In addition, a number of federal, state, local, and tribal resource management and monitoring programs have been established to protect environmental resources and in cases where there is existing environmental impairment, to effect restoration. The assessment of cumulative impacts recognizes the existence of these programs and assumes that the mandate under which each program was established will continue. The cumulative effects analysis assumes that these programs effectively avoid or mitigate the environmental impacts that they are designed to address.

Effective treatment of salt cedar and Russian knapweed by MRREIAC and NDF has occurred on the Muddy River in the past on private property in Moapa, Logandale and Overton. Currently treatments are ongoing on TNC properties in Warm Springs and are anticipated to occur on the Southern Nevada Water Authority's Warm Springs Ranch. Future treatments are reasonable and foreseeable, if funding is available, to reduce risk of wildland fire, control noxious weeds, and restore native plant communities on BLM managed lands on the Muddy River, the Moapa National Wildlife Refuge; TNC properties, Warm Springs Ranch, and on other private property where the owner is interested in participating in restoration and/or invasive weeds treatments.

Future treatments would utilize the results of this experiment to inform the methods of treatments. Success of these experimental treatments may encourage use of other effective methods to include use of prescribed fire.

Cumulative effects of vegetation treatments on BLM lands throughout the 17 western states are analyzed in Chapter 4 of the PEIS.

4.3.1 Air Quality

As discussed in the PEIS, manual and herbicide treatments would contribute only small amounts of pollutants to the air. Potential future use of prescribed fire to remove salt cedar and Russian knapweed would result in the majority of emissions. These emissions would accumulate and the amount of emissions released into the environment would be related to the number of acres treated and the type of treatment. Exceedances of National Ambient Air Quality Standards (NAAQS), however, would not occur on the Muddy River as it is not anticipated that the BLM's National vegetation treatment program treating 932,000 acres a year, for which the Muddy River is a fraction of a percentage, would exceed NAAQS and account for less than 1% of pollutants generated nationwide.

4.3.2 Forest and Rangelands, and Wetland and Riparian

As discussed in the PEIS, under natural conditions, wetland and riparian plant communities have a high degree of structural and species diversity, reflecting from past disturbances from floods, fire, and fish and wildlife use. Since European settlement, many wetland and riparian areas have been drained or altered and their functions and values lost or reduced. Efforts to restore natural disturbance regimes, reduce the potential for large-scale wildland fire, and manage and control noxious weeds and other invasive vegetation should help to restore native vegetation to the plant community, increasing the degree of structure and species diversity. Short-term effects, including increased erosion of the river's channelized banks in the future, allowing the river to widen and meander, could accumulate. If treatments were successful, long-term improvement in wetland and riparian area function and productivity should more than offset short-term losses.

4.3.3 Migratory Birds

Increased removal of mature stands of salt cedar along the Muddy River would reduce available nesting, perching and foraging habitat for migratory birds. If the rate of acres cleared for treatment along the river exceeds the resulting rate of revegetation with native vegetation it is anticipated that available habitat for these species would be reduced. As discussed in the PEIS, efforts to restore natural disturbance regimes, reduce the potential for large-scale wildland fire, and manage and control noxious weeds and other invasive vegetation should help to restore native plant communities. Restoration of native vegetation should improve migratory bird habitat by restoring structural and vegetation diversity and creating associated habitat niches for more bird species. Implementation of standard operating procedures, minimization measures and future consultation with U.S. Fish and Wildlife Service should reduce the likelihood of take occurring.

4.3.4 Noxious Weeds

The Preferred Alternative would provide information on control and restoration of salt cedar and

Russian knapweed infested riparian areas. Documentation of effective treatment methods may result in an increase in treatment of public and private lands along the Muddy River infested with these species. Complete removal of these species from the Muddy River system is unlikely as not all properties would be treated and the seed bank would persist. At best, dominance of these species would be reduced, native vegetation that has been lost from the system would be reintroduced, and the threat noxious weeds pose to agriculture and listed species would be reduced.

4.3.5 Threatened and Endangered Species

As discussed in the PEIS, efforts to restore natural disturbance regimes, reduce the potential for large-scale wildland fire, and manage and control noxious weeds and other invasive vegetation should help to restore native plant communities and moderate stream temperatures and water flows.

Resulting improvements in the functioning condition of the Muddy River to include riffles, runs and pools, would improve habitat conditions for the Moapa dace and Virgin River chub. Fish populations may be slow to respond to improved habitat conditions. Competition with nonnative fish may limit the ability of native species to access or fully utilize habitat below the BLM fish barrier. Use of herbicides along the river may increase potential for take of Moapa dace if heavy use occurs in or above occupied stretches of the river and springs. Implementation of standard operating procedures, minimization measures and future consultation with U.S. Fish and Wildlife Service should reduce the likelihood of take occurring.

Increased removal of mature stands of salt cedar along the Muddy River would reduce available nesting, perching and foraging habitat for the southwestern willow flycatcher. If the rate of acres cleared for treatment along the river exceeds the resulting rate of revegetation with native vegetation it is anticipated that available habitat for the species would be reduced. Over time, an increase in native riparian woodland would result in a positive increase in available quality habitat for the southwestern willow flycatcher along the Muddy River. Implementation of standard operating procedures, minimization measures and future consultation with U.S. Fish and Wildlife Service should reduce the likelihood of take occurring.

4.3.6 Water Quality

As discussed in the PEIS, efforts to restore natural disturbance regimes, reduce the potential for large-scale wildland fire, and manage and control noxious weeds and other invasive vegetation would help to reduce erosion and sedimentation and restore native plant communities. This would improve surface water quality. An increase in the use of herbicides, regardless of source, would contribute to loss of water quality both on and off public lands, as these herbicides have the potential to move off site in surface water or groundwater. The movement of herbicides off treatments sites could contaminate public drinking water sources and water sources used by fish and wildlife. However, use of herbicides that pose fewer risks to humans and fish and wildlife, strict adherence to buffer guidelines and other minimization measures to protect water resources, and limited funding that would result in a limited number of acres treated each year, should reduce and/or mitigate for some of the loss of water quality.

4.3.7 Wildland Fires

Private land in the Moapa Valley is located almost exclusively along the Muddy River and Meadow Valley Wash floodplains. While the area remains rural, increased development has been proposed on or adjacent to lands containing salt cedar and Russian knapweed. As wildfires become more severe in the western U.S., the risks to life and property within the growing wildland urban interface are expected to increase. The Preferred Alternative would provide information on control and restoration of salt cedar and Russian knapweed infested riparian areas. Documentation of effective treatment methods may result in an increase in treatment of public and private lands along the Muddy River infested with these species to reduce risk to life and property from wildfires.

5.0 TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED

USFWS - Endangered Species Act informal consultation

6.0 LIST OF PREPARERS

Archaeologist – Susanne Rowe

Botanist – Christina Lund

Fire/Fuels – Troy Phelps, Nora Capallete

Hydrologist – Sarah Peterson

Lands/Realty Specialist – Frederic Marcell

Planning & Environmental Coordinator – Jeffrey Steinmetz

Range/Weed Coordinator – Everett Bartz

Wildlife Biologists – Jayson Barangan, Carolyn Ronning

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PRELIMINARY

Appendix A Material Safety Data Sheets (MSDS)

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For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night: 1-800-424-9300.
For Medical Emergencies Only, Call 1-877-325-1840.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Tahoe™ 3A Herbicide
Synonyms: Triclopyr Triethylamine Salt; (3,5,6-Trichloro-2-Pyridinyl) oxyacetic acid, triethylamine salt; Triclopyr TEA
EPA Reg. No.: 228-518
Company Name: Nufarm Americas Inc.
 150 Harvester Drive, Suite 200
 Burr Ridge, IL 60527
Date of Issue: January 11, 2007 **Supersedes:** New
Sections Revised: New

2. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance and Odor: Light pink colored liquid with a slight ammonia-like odor.

Warning Statements: Keep out of reach of children. DANGER. Corrosive. Causes irreversible eye damage. Harmful if swallowed or absorbed through skin. Prolonged or frequently repeated skin contact with herbicide concentrate may cause an allergic skin reaction in some individuals. Do not get in eyes or on skin or clothing. Combustible; flash point 141°F (61°C).

Potential Health Effects:

Likely Routes of Exposure: Inhalation, eye and skin contact.

Eye Contact: Causes irreversible eye damage. Vapors and mist can cause irritation.

Skin Contact: Mildly toxic and slightly irritating based on toxicity studies. Prolonged or frequently repeated skin contact with herbicide concentrate may cause an allergic skin reaction in some individuals.

Ingestion: Harmful if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Inhalation: Low inhalation toxicity.

Medical Conditions Aggravated by Exposure: Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

See Section 11: TOXICOLOGICAL INFORMATION for more information.

Potential Environmental Effects:

Slightly toxic to aquatic invertebrates.

See Section 12: ECOLOGICAL INFORMATION for more information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
Triclopyr, triethylamine salt	57213-69-1	44.4
Other Ingredients Including:		55.6
Ethylenediaminetetraacetic Acid (EDTA)	60-00-4	<5.0

4. FIRST AID MEASURES

If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If on Skin: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE FIGHTING MEASURES

Flash Point: 141°F (61°C) Closed Cup

Autoignition Temperature: Not determined

Flammability Limits: Not determined

Extinguishing Media: Use alcohol resistant foam, dry chemical, carbon dioxide.

Special Fire Fighting Procedures: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Containers will burst from internal pressure under extreme fire conditions. If water is used to fight fire or cool containers, dike to prevent runoff contamination of municipal sewers and waterways.

Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as hydrogen chloride, nitrogen oxides and phosgene.

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 3 Flammability: 2 Reactivity: 1

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Cleanup and Disposal: Pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

Handling:

Do not get in eyes or on skin or clothing. Prolonged or frequently repeated skin contact with herbicide concentrate may cause an allergic skin reaction in some individuals. Users should wash hands before

eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Storage:

Store above 28°F or agitate before use. Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not use or store near heat or open flame.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Personal Protective Equipment:

Eye/Face Protection: To avoid contact with eyes, wear face shield, goggles or safety glasses with front, brow and temple protection. An emergency eyewash or water supply should be readily accessible to the work area.

Skin Protection: To avoid contact with skin, wear long pants, long-sleeved shirt, socks, shoes and chemical-resistant gloves. An emergency shower or water supply should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
Triclopyr TEA	NE	NE	NE	NE	

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Light pink colored liquid with a slight ammonia-like odor.

Boiling Point: Not determined

Solubility in Water: Soluble

Density: 9.66 pounds/gallon

Specific Gravity: 1.16 @ 20°C

Evaporation Rate: Not determined

Vapor Density: Not determined

Freezing Point: Not determined

Vapor Pressure: Not determined

pH: 8.5 – 9.0

Viscosity: Not determined

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under normal handling and storage conditions.

Conditions to Avoid: Avoid temperatures near or above flash point 141°F (61°C) and below 40°F (6°C) and heat or open flame.

Incompatible Materials: Strong oxidizing agents: bases and acids.

Hazardous Decomposition Products: Under fire conditions may produce gases such as hydrogen chloride, nitrogen oxides and phosgene.

Hazardous Reactions: Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:

Data from laboratory studies on this product are summarized below:

Oral: Rat LD₅₀: >1,500 mg/kg

Dermal: Rat LD₅₀: >2,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.5 mg/l

Eye Irritation: Rabbit: Severely irritating/corrosive

Skin Irritation: Rabbit: Slightly irritating

Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Excessive exposure to Triclopyr may effect heart, kidneys and liver.

Carcinogenicity / Chronic Health Effects: Triclopyr did not cause cancer in laboratory studies.

Reproductive Toxicity: For Triclopyr in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Developmental Toxicity: Triclopyr did not cause birth defects in laboratory animals.

Genotoxicity: For Triclopyr, *in-vitro* and animal mutagenicity studies were negative.

Assessment Carcinogenicity: None listed with ACGIH, IARC, NTP or OSHA.

See Section 2: HAZARDS IDENTIFICATION for more information.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on Triclopyr TEA:

Rainbow Trout Acute LC ₅₀ :	400 mg/l	Bobwhite Quail 8-day Dietary LC ₅₀ :	>10,000 ppm
Channel Catfish Acute LC ₅₀ :	446 mg/l	Mallard Duck Oral LD ₅₀ :	2,055 mg/kg
Pink Shrimp Acute LC ₅₀ :	895 mg/l	Mallard Duck 8-day Dietary LC ₅₀ :	>10,000 ppm
Growth Inhibition EC ₅₀ Green Algae:	45 mg/l		

Environmental Fate:

In laboratory and field studies, Triclopyr TEA rapidly dissociates to parent acid in the environment. Triclopyr is moderately persistent and mobile. In soil, the predominant degradation pathway is microbial and the average half-life is 30 days. Half-lives tend to be shorter in warm, moist soils with a high organic content. The predominant degradation pathway for triclopyr in water is photodegradation and the average half-life is one day.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate, is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

Container Handling and Disposal:

Plastic Containers: Triple rinse (or equivalent). The offer for recycling or recondition, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Metal Containers: Triple rinse (or equivalent). The offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this MSDS.

DOT**≤ 119 gallons per completed package**

Non Regulated – See 49 CFR 173.150(f) & 173.132(b)(3)

≥ 119 gallons per completed package

COMBUSTIBLE LIQUID, N.O.S., (TRIEHYLAMINE), 3, NA 1993, III

IMDG

Non Regulated - See IMDG 3.3 & 2.6.2.1.3

IATA

Non Regulated - See IATA 2.3 & 3.6.1.5.3

15. REGULATORY INFORMATION**U.S. Federal Regulations:**

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:**Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):**

Immediate, Delayed and Fire

Section 313 Toxic Chemical(s):

Triclopyr, Trimethylammonium Salt (CAS No. 57213-69-1), 44.4% by weight in product

Reportable Quantity (RQ) under U.S. CERCLA:

Ethylenediaminetetraacetic Acid (EDTA) (CAS No. 60-00-4), 5,000 pounds

RCRA Waste Code:

None

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: Not Listed

16. OTHER INFORMATION

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety and environmental information for employers,

employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. **NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.**

Tahoe is a trademark of Nufarm Americas Inc.



For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night: 1-800-424-9300.
For Medical Emergencies Only, Call 1-877-325-1840.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Tahoe™ 4E Herbicide
Synonyms: Butoxyethyl Triclopyr; (3,5,6-Trichloro-2-Pyridinyl) oxyacetic acid, butoxyethyl ester; Triclopyr BEE
EPA Reg. No.: 228-517
Company Name: Nufarm Americas Inc.
 150 Harvester Drive, Suite 200
 Burr Ridge, IL 60527
Date of Issue: November 8, 2006 **Supersedes:** New
Sections Revised: New

2. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance and Odor: Amber colored liquid with kerosene-like odor.

Warning Statements: Keep out of reach of children. CAUTION. Harmful if swallowed, inhaled, or absorbed through skin. Avoid contact with eyes, skin, or clothing. Avoid breathing mists or vapors. Combustible; flash point >135°F (44°C).

Potential Health Effects:

Likely Routes of Exposure: Inhalation, eye and skin contact.

Eye Contact: Minimally irritating based on toxicity studies.

Skin Contact: Moderately irritating based on toxicity studies.

Ingestion: Harmful if swallowed. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

Inhalation: Harmful if inhaled. Excessive exposure may cause irritation to upper respiratory tract. Overexposure to kerosene may cause central nervous system effects.

Medical Conditions Aggravated by Exposure: Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

See Section 11: TOXICOLOGICAL INFORMATION for more information.

Potential Environmental Effects:

This product is toxic to fish.

See Section 12: ECOLOGICAL INFORMATION for more information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
Triclopyr, butoxyethyl ester	64700-56-7	61.6
Other Ingredients Including Kerosene	8008-20-6	38.4

4. FIRST AID MEASURES

If on Skin: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE FIGHTING MEASURES

Flash Point: >135°F (44°C) Closed Cup

Autoignition Temperature: Not determined

Flammability Limits: Not determined

Extinguishing Media: Use alcohol resistant foam, dry chemical, carbon dioxide, water fog.

Special Fire Fighting Procedures: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: If water is used to fight fire or cool containers, dike to prevent runoff contamination of municipal sewers and waterways.

Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as hydrogen chloride, nitrogen oxides and phosgene.

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 2 Flammability: 2 Reactivity: 1

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Cleanup and Disposal: Pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE**Handling:**

Avoid contact with eyes, skin, or clothing. Avoid breathing mists or vapors. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove Personal Protective

Equipment (PPE) immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Storage:

Store above 28°F or agitate before use. Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not use or store near heat or open flame. Do not cut or weld container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Personal Protective Equipment:

Eye/Face Protection: To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

Skin Protection: To avoid contact with skin, wear long pants, long-sleeved shirt, socks, shoes and chemical-resistant gloves. An emergency shower or water supply should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
Triclopyr BEE	NE	NE	NE	NE	
Kerosene	NE	NE	200	NE	mg/m ³

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Amber colored liquid with kerosene-like odor.

Boiling Point: Not determined
Density: 8.91 pounds/gallon
Evaporation Rate: Not determined
Freezing Point: Not determined
pH: 4.0 – 5.0

Solubility in Water: Emulsifies
Specific Gravity: 1.07 @ 20°C
Vapor Density: Not determined
Vapor Pressure: Not determined
Viscosity: Not determined

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under normal handling and storage conditions.

Conditions to Avoid: Avoid temperatures near or above flash point >135°F (44°C), heat or open flame.

Incompatible Materials: Strong oxidizing agents: bases and acids.

Hazardous Decomposition Products: Under fire conditions may produce gases such as hydrogen chloride, nitrogen oxides and phosgene.

Hazardous Reactions: Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:

Data from laboratory studies on this product are summarized below:

Oral: Rat LD₅₀: >1,000 mg/kg

Dermal: Rat LD₅₀: >2,000 mg/kg

Eye Irritation: Rabbit: Minimally irritating

Skin Irritation: Rabbit: Moderately irritating

Skin Sensitization: Guinea Pig: Potential sensitizer after repeated exposure to concentrate.

Subchronic (Target Organ) Effects: Excessive exposure to triclopyr may effect blood, kidneys and liver.

Carcinogenicity / Chronic Health Effects: Triclopyr did not cause cancer in laboratory studies. The U.S. EPA has given triclopyr a Class D classification (not classifiable as to human carcinogenicity). In a lifetime animal dermal carcinogenicity study, an increased incidence of skin tumors was observed when kerosene was applied at doses that also produced skin irritation. This response was similar to that produced in skin by other types of chronic chemical/physical irritation. No increase in tumors was observed when non-irritating dilutions of kerosene were applied at equivalent doses indicating that kerosene is unlikely to cause skin cancer in the absence of long-term continued skin irritation. In long-term animal studies with ethylene glycol butyl ether, small but statistically significant increases in tumors were observed in mice but not rats. The effects are not believed to be relevant to humans. If the material is handled in accordance with proper industrial handling, exposures should not pose a carcinogenic risk to man.

Reproductive Toxicity: For triclopyr, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Developmental Toxicity: For triclopyr, birth defects are unlikely. Exposures having no effect on the mother should have not effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother.

Genotoxicity: For triclopyr, *in-vitro* and animal mutagenicity studies were negative.

Assessment Carcinogenicity: None listed with ACGIH, IARC, NTP or OSHA.

See Section 2: HAZARDS IDENTIFICATION for more information.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on Triclopyr BEE:

96-hour LC ₅₀ Bluegill:	0.36 mg/l	Bobwhite Quail Oral LD ₅₀ :	735 mg/kg
96-hour LC ₅₀ Rainbow Trout:	0.65 mg/l	Bobwhite Quail 8-day Dietary LC ₅₀ :	5,401 ppm
48-hour EC ₅₀ Daphnia:	10.1 mg/l	Mallard Duck 8-day Dietary LC ₅₀ :	>5,401 ppm

Environmental Fate:

The bioconcentration potential for Triclopyr BEE is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). The photolysis half-life in water is 6.6 days. Under aerobic soil conditions the half-life is 6 – 52 days and the hydrolysis half-life is 12 hours.

13. DISPOSAL CONSIDERATIONS**Waste Disposal Method:**

Pesticide, spray mixture, or rinse water that cannot be used according to label instructions must be disposed of according to applicable Federal, state and local procedures.

Container Handling and Disposal:

Plastic Containers: Triple rinse (or equivalent). The offer for recycling or recondition, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Metal Containers: Triple rinse (or equivalent). The offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this MSDS.

DOT

Nufarm 2.5 gallons and 30 gallons packaging

Non Regulated

See 49 CFR 173.150(f)

IMDG

Flammable liquid, nos, (Kerosene), 3, UN1993, III

IATA

Flammable liquid, nos, (Kerosene), 3, UN1993, III

15. REGULATORY INFORMATION**U.S. Federal Regulations:**

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):

Immediate, Delayed and Fire

Section 313 Toxic Chemical(s):

None

Reportable Quantity (RQ) under U.S. CERCLA:

None

RCRA Waste Code:

None

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: Not Listed

16. OTHER INFORMATION

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

Tahoe is a trademark of Nufarm Americas Inc.

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

Effective Date: 25-Jul-07
Product Code: 11388
MSDS: 002805

TRANSLINE* HERBICIDE

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Transline* Herbicide

COMPANY IDENTIFICATION:

Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Red to brown liquid with a sweet odor. May cause eye and skin irritation.

EMERGENCY PHONE NUMBER: 800-992-5994

3. COMPOSITION/INFORMATION ON INGREDIENTS:

Component Name	CAS Number	W/W%
Clopyralid MEA Salt	57754-85-5	40.9
Isopropanol	67-63-0	5.0
Ethylene oxide, propylene oxide and di-sec-butylphenol polymer	69029-39-6	1.0
Balance		53.1

4. FIRST AID:

EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, than continue rinsing eyes. Call a poison control center or doctor for treatment advice.

SKIN: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

INGESTION: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

INHALATION: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, and then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc.). Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: 117°F (47.2C)

METHOD USED: TCC

FLAMMABLE LIMITS

LFL: Not determined

UFL: Not determined

EXTINGUISHING MEDIA: Water fog, alcohol resistant foam, CO₂, dry chemical, or foam preferred.

FIRE & EXPLOSION HAZARDS: Toxic, irritating fumes may be produced if product is involved in a fire. Contain water from fire-fighting to prevent entry into surface or ground water.

FIRE-FIGHTING EQUIPMENT: Under fire conditions use a positive-pressure self-contained breathing apparatus and protective clothing.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Absorb small spills with inert material such as sawdust or sand. Place in suitable container for disposal. Report large spills to Dow AgroSciences on 800-992-5994.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children and animals. Do not swallow. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Remove and wash contaminated clothing. Store in original container with the lid tightly closed. This product is combustible. Do not use or store this product near a heat source, open flame or other sources of ignition, particularly if storage temperatures are near the flash point (117°F, 47.2C). Noxious fumes may be formed under fire conditions.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINES:

Clopyralid: Dow AgroSciences Industrial Hygiene Guideline is 10 mg/M³.

Isopropanol: ACGIH TLV and OSHA PEL are 400 ppm TWA, 500 ppm STEL.

Ethylene oxide, propylene oxide and di-sec-butylphenol polymer: Dow AgroSciences Industrial Hygiene Guideline is 2 mg/M³.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Use only with adequate ventilation.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required use an approved air-purifying or positive-pressure supplied-air respirator depending on the potential airborne concentration. For emergency and other conditions where the exposure guideline may be greatly exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved positive-pressure supplied-air respirator. The following should be effective types of air-purifying respirators: organic vapor cartridge.

SKIN PROTECTION: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur.

EYE PROTECTION: Use safety glasses. If exposure causes eye discomfort, use a full-face respirator.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: 212°F (100C)

VAPOR PRESSURE: 23.5 mmHg @ 20C

VAPOR DENSITY: 1.06 @ 20C

SOLUBILITY IN WATER: Miscible

SPECIFIC GRAVITY: 1.161 @ 68°F, 20C

APPEARANCE: Red to brown liquid

ODOR: Sweet

pH: 7.5-8.0

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Store under cool, dry conditions. Avoid elevated temperatures and direct sunlight. Combustible. Do not use or store near heat, open flame, or other sources of ignition, especially if temperatures are near or at the flash point.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Avoid acid, oxidizing material, halogenated organics, brass, copper, zinc, and aluminum.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen chloride, nitrogen oxides under fire conditions, chlorinated pyridine.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause very slight temporary corneal injury. Vapor may cause irritation experienced as mild discomfort and redness.

SKIN: Prolonged contact may cause moderate skin irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD₅₀ for skin absorption in rabbits is >5,000 mg/kg.

INGESTION: Very low toxicity if swallowed. The oral LD₅₀ for rats is >5,000 mg/kg. Harmful effects not anticipated from swallowing small amounts.

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TRANSLINE* HERBICIDE

INHALATION: Vapor concentrations are attainable which could be hazardous on single exposure. The aerosol LC₅₀ for rats is >3.0 mg/L for 4 hours. Excessive exposure (400 ppm) to isopropanol may cause eye, nose and throat irritation. Incoordination, confusion, hypertension, hypothermia, circulatory collapse, respiratory arrest and death may occur following longer duration of higher levels. Observations in animals include middle ear lining damage upon exposure to vapors of isopropanol. However, the relevance of this to humans is unknown.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: In animals, effects have been reported on the following organs: liver and kidney. Observations in animals include lethargy. For isopropanol: kidney effects and/or tumors have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

CANCER INFORMATION: The components tested did not cause cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): Clopyralid caused birth defects in laboratory animal studies, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure. Isopropanol has been toxic to the fetus in laboratory animals at doses toxic to the mother.

REPRODUCTIVE EFFECTS: For the components tested, in animal studies, did not interfere with reproduction.

MUTAGENICITY: For the components tested, in-vitro and animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING:

Based largely or completely on information for clopyralid. Bioconcentration potential is low (BCF <100 or Log Pow <3). Potential for mobility in soil is very high (Koc between 0 and 50).

DEGRADATION & PERSISTENCE:

Based largely or completely on information for clopyralid. Biodegradation under aerobic laboratory conditions is below detectable limits (BOD₂₀ or BOD₂₈/ThOD is <2.5%).

ECOTOXICOLOGY:

Based largely or completely on information for clopyralid. Material is practically non-toxic to aquatic organisms on an acute bases (LC₅₀/EC₅₀ >100 mg/L in most sensitive species tested).

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION:

U.S. DEPARTMENT OF TRANSPORTATION INFORMATION:

DOT Non-Bulk: Not Regulated

DOT Bulk:

ID Number: NA1993

Proper Shipping Name: Combustible Liquid, N.O.S.

Technical Name: Contains Isopropanol

Hazard Class: Combustible Liquid

Packing Group: PG III

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Indianapolis, IN 46268

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TRANSLINE* HERBICIDE

IMDG

ID Number: UN1993
Proper Shipping Name: Flammable Liquid, N.O.S.
Technical Name: Contains Isopropanol
Hazard Class: 3
Packing Group: PG III
EMS Number: F-E,S-E

ICAO/IATA:

ID Number: UN1993
Proper Shipping Name: Flammable Liquid, N.O.S.
Technical Name: Contains Isopropanol
Hazard Class: 3
Packing Group: PG III
Cargo Packing Instruction: 310
Passenger Packing Instruction: 309

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>CONCENTRATION</u>
Isopropanol	67-63-0	5.0%

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>LIST</u>
Isopropanol	67-63-0	NJ1 NJ2 NJ3 PA1 PA3

NJ1=New Jersey Special Health Hazard Substance (present at > or = to 0.1%).
NJ2=New Jersey Environmental Hazardous Substance (present at > or = to 1.0%).
NJ3=New Jersey Workplace Hazardous Substance (present at > or = to 1.0%).
PA1=Pennsylvania Hazardous Substance (present at > or = to 1.0%).
PA3=Pennsylvania Environmental Hazardous Substance (present at > or = to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Health	2
Flammability	2
Reactivity	1

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

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TRANSLINE* HERBICIDE

Effective Date: 25-Jul-07
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16. OTHER INFORMATION:

MSDS STATUS: Revised Sections: 2,3,4,6,8,11,12,13,14
Reference: DR-0135-0385
Replaces MSDS Dated: 2/14/03
Document Code: D03-113-006
Replaces Document Code: D03-113-005

The Information Herein Is Given In Good Faith, But No
Warranty, Express or Implied, Is Made. Consult Dow
AgroSciences for Further Information.

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Appendix B Informal Section 7 Consultation

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Las Vegas Field Office
4701 North Torrey Pines Dr
Las Vegas NV 89130
www.nv.blm.gov



In Reply Refer to:
6840 (NV-052)

MAY 2 2008

Memorandum

To: Assistant Field Supervisor, Southern Nevada Field Office, USFWS, Las Vegas, Nevada

From: Assistant Field Manager, Division of Recreation and Renewable Resources

Subject: Request for Informal Consultation on Effectiveness Monitoring for Salt Cedar and Knapweed Control on the Upper Muddy River Floodplain Project

In accordance with Section 7(a) 2 of the Endangered Species Act of 1973, as amended, the Las Vegas Field Office, Bureau of Land Management (BLM) requests to conduct informal consultation for the Effectiveness Monitoring for Salt Cedar and Knapweed Control on the Upper Muddy River Floodplain Project. An informal consultation form is attached.

If you have any questions, please contact Carolyn Ronning at (702) 515-5143 or Jayson Barangan at (702) 515-5094.

Attachment

1 – Informal Consultation Form (6 pp)

cc:

State Director (NV-930)

INFORMAL CONSULTATION FORM

Date: May 2, 2008

Service File No: 84320-2008-I-0380

Species: Southwestern Willow Flycatcher (*Empidonax traillii extimus*)
Moapa Dace (*Moapa coriacea*)

Federal Agency: Bureau of Land Management, Las Vegas

Address: 4701 North Torrey Pines Drive

City/State/Zip: Las Vegas, Nevada 89130

Contact/ Title: Carolyn Ronning, MSHCP Coordinator
Jayson Barangan, Natural Resource Specialist

Phone/Fax: Phone: (702) 515-5143 FAX: (702) 515-5155

Project Proponent: The Nature Conservancy, Southern Nevada Office

Address: 3380 West Sahara Ave., #120

City/State/Zip: Las Vegas, NV 89102

Contact/ Title: Louis Provencher

Phone/Fax: Phone: 702-737-8744 FAX: 702-737-5787

Agency/Case Project No. NV-052-2008-145

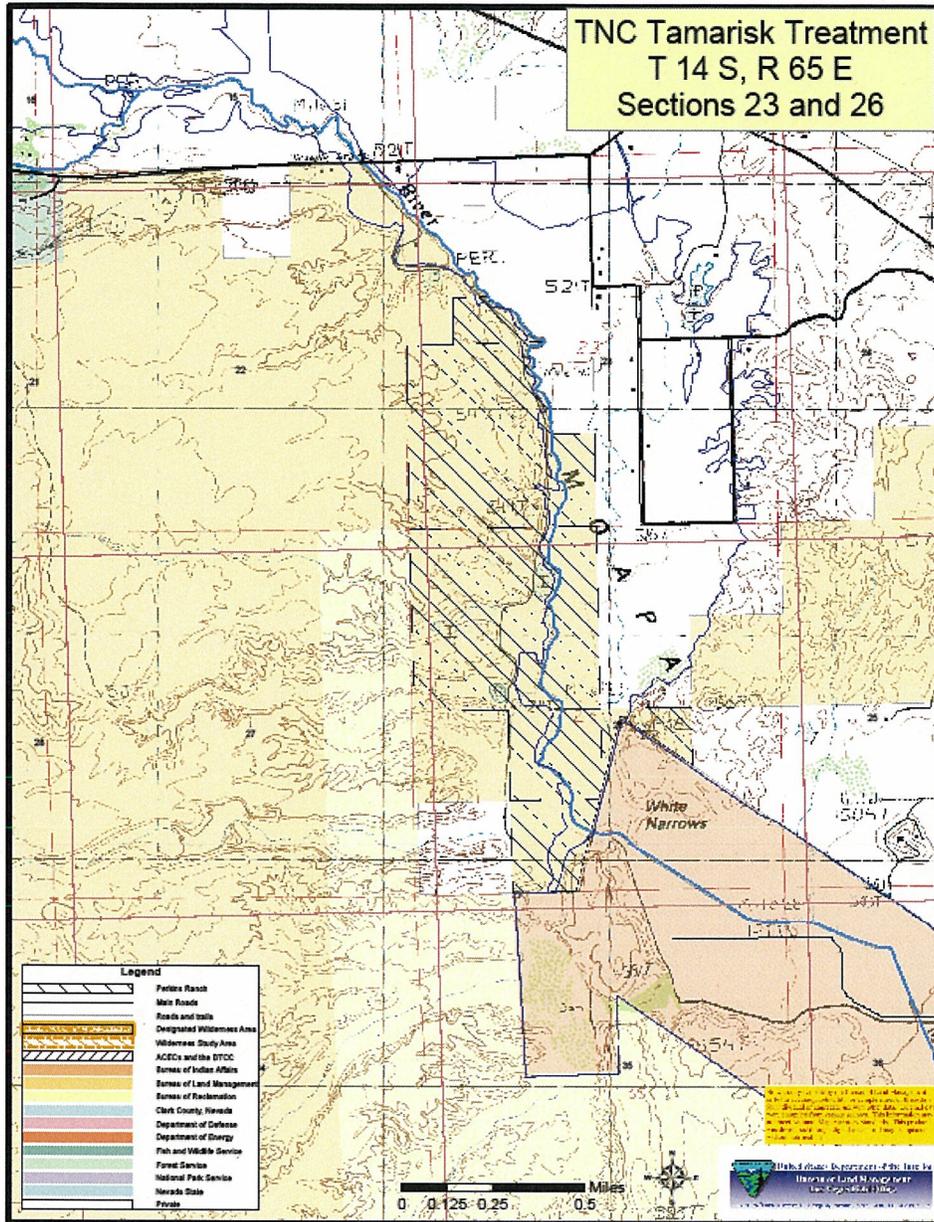
Brief Project Description (exact location, size, information on prior disturbance of the project site, starting date, and duration):

The Nature Conservancy is proposing to conduct experimental manipulations of riparian vegetation along the Muddy River to reduce site dominance of the invasive tree species tamarisk (*Tamarix* spp.) and Russian knapweed (*Acroptilon repens*) along the river and identify through a replicated study the most effective treatment method for controlling tamarisk in southern Nevada. The major benefits would be to riparian restoration; habitat improvement for the endangered southwestern willow flycatcher, sensitive and common wildlife species; noxious weed control; and fire risk abatement in the wildland urban interface (WUI) of Warm Springs and Moapa, Nevada through hazardous fuels reduction treatments.

PROPOSED ACTION

Experimental manipulations would be conducted in Warm Springs, Nevada on the BLM parcel formally known as the Perkins Ranch (Fig 1). Legal descriptions are as follows: T 14S, R 65E, Sections 23 and 26. Treatments would involve control of saltcedar and knapweed in the 100-yr floodplain of the Muddy River using mechanical and chemical control methods. Treated plots would be revegetated with a native seed mix recommended by BLM. Variables for vegetation and soil chemistry will be sampled before and after manipulations.

Figure 1. Project location



The proposed manipulations will affect the entire portion of the property immediately adjacent to the river (from water's edge to above the river's bank). Experimental manipulations will be conducted in replicate, rectangular plots 10-20-m long and parallel to the river (Table 1). The width of each replicate plot will vary with the extent of salt cedar infestation from the river's edge. It is anticipated that between 12 and 36 acres of the 407-acre property would be treated (Table 2).

Table 1. Example of treatment combination randomization for one block (in reality, several blocks will be used with different a randomization per block). Legend: C = no removal control (hereafter control); T = chainsaw felling followed by painting stumps with the herbicide Tahoe® and spraying knapweeds with Transline® [hereafter traditional]; N = natural regeneration of plants (do-nothing control); and A = artificial native plant restoration using different species (recommended BLM seed mix) and methods for the lower and upper riparian zones as accomplished by Nevada Division of Forestry (NDF) in the past.

<u>River</u>				
10m	10m			
C	C+A	C+N	T+A	T+N

Upland

Table 2. Description of property and area to be treated

Public Land Property area Managed by BLM (acres)	Acres in 100-yr floodplain	Number of shoreline miles	Maximum area disturbed (shoreline X 30 m) (acres)	Minimum area disturbed (acres)
407.81	191.63	1.08	35.94962	11.856

Herbicides

The herbicides Tahoe 3® and 4® and Transline® will be applied, respectively, on salt cedar and Russian knapweed in plots receiving herbicides, which is ½ of plots. Herbicides will be applied by certified NDF staff and inmate crews. Representatives of the Muddy River Regional Environmental Impact Alleviation Committee (MRREIAC) will coordinate the work of NDF crews but not themselves apply herbicides or fell salt cedar.

Tahoe 3 will be used over water and Tahoe 4 in other areas. Both of these herbicides have been used previously by MRREIAC and NDF crews, and work well. Water testing has been done after their use, and there has never been any residue from the herbicide in the water. The herbicides are applied by either spraying or painting, whichever is applicable in the area, on freshly cut salt cedar.

Transline will be used on knapweed and has been selected as it is safer to use in areas where sensitive species and water quality are of concern than the more effective herbicide Tordon®.

Native Plant Revegetation

Native plant material will consist of a BLM recommended seed mix composed of inland saltgrass, Indian ricegrass, alkali sacaton, and sand dropseed in the upland and slope portion of plots and honey mesquite in the drier portions of the floodplain. Willow and cottonwood cuttings will be planted at the river's edge. Seed will be purchased by MRREIAC from Granite Seed suppliers and applied by NDF on ½ of plots. Cuttings of willow and cottonwood will be obtained at Hidden Valley Dairy and 5-gallon trees will be obtained from the NDF nursery. The other half of plots will receive no plant material and natural plant succession will be allowed (as an experimental control for artificial native plant regeneration).

Summary and Timeline of Sampling Methods

Experimental plots will be marked with rebar and flagged prior to sampling and treatment. Pre-treatment sampling will be initiated in 2008. Sampling will be carried out using non-destructive methods, consisting of measurement of understory and midstory vegetation cover and height, tree height and cover, and collection of soil samples for chemical analyses with a 7-cm diameter soil auger pressed to a depth of 10cm. After plots are sampled, control and revegetation treatments will be applied as soon as possible. Treatments will also be applied in 2009. Depending on treatment dates, plots will be resampled once or twice after treatment application. TNC anticipates continuing the study into subsequent funding cycles to measure longer term responses and increase replication. Accordingly, TNC requests that the experimental sites be provided some protection from other manipulations until this study is completed.

Experimental manipulations would also occur on the following private properties: The Nature Conservancy's Alamo, Shirley-Perkins, and Henry properties, Hidden Valley Dairy, and Omer properties. TNC will also remove salt cedar and knapweed from adjacent small private properties while treating the experimental areas to minimize the reestablishment of these species. These actions are not within the scope of this proposed action as they will not occur on federally managed lands.

Habitat Description: (including surveys conducted and results)

The project area occurs in wet ecosites located within the floodplain of the Muddy River. The water table in this area is at or near the surface. The dominant vegetation in the project area includes tamarisk and arrowweed (*Pluchea sericea*). Other vegetation in the area includes desert wild grape (*Vitis girdiana*), mule fat seepwillow (*Baccharis salicifolia*), mesquite (*Prosopis* spp.), saltbush (*Atriplex* spp.), and desert willow (*Salix* sp.). As the project area occurs in a channelized, quick-moving portion of the Muddy River, there are no sandbars or established wetlands vegetation such as cattail (*Typha* sp.), sedge, or bulrush (*Scripus* sp.). Surveys for southwestern willow flycatchers have been conducted northwest of the project area on the Muddy River since 2000. No southwestern willow flycatchers have been documented on the Perkins Ranch.

Minimization measures:

- Existing trails and roads would be used to access the project area.
- Necessary equipment for treatment will be hand carried to specific treatment sites.
- Riparian vegetation is utilized by migratory bird species for foraging, nesting and cover. All project personnel must comply with the Migratory Bird Treaty Act and avoid potential impacts to protected birds within the project area. A list of those protect birds are in 50 C.F.R. 10.13. The following measures describe the most effective measures to avoid impacts:
 - 1) To prevent undue harm, habitat-altering projects or portions of projects should be scheduled outside bird breeding season. In riparian areas, breeding season generally occurs between March 1st – August 30th.
 - 2) If a project that may alter any breeding habitat has to occur during the breeding season, then a qualified biologist must survey the area for nests prior to commencement of vegetation treatments. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests (containing eggs or young) are found, an appropriately-sized buffer area (species dependent) must be avoided until the young birds fledge. No vegetation removal may occur between May 1 to August 31 to ensure take of southwestern willow flycatcher nests does not occur.
- All treated tamarisk and knapweed will be removed from Perkins Ranch and disposed of properly.

-
- The herbicide application process would involve a) backpack spraying with low volume tips for moderate soaking of the plants and/or b) wick applicators for highly targeted applications. Applicators would exercise caution during treatments and implement best management practices to minimize overspray, drift, run-off, or leaching of herbicides to waters adjacent to treatment areas.
- Tahoe 4 is toxic to fish. It will only be used in upland areas of the projects site, a minimum of 6 feet from the water. Tahoe 3 will be used within the 6-foot buffer, instead.
- Application of Tahoe and Transline will be in strict accordance with label directions for these products. The manufacturer's recommended application rate will be followed to avoid possible harmful effects to native plants, wildlife, fish, and aquatic invertebrates.
 - 1) All mixing and transfers of herbicides from one container to another will be done over a plastic tarp in an upland location at least 50 yards from riparian or wetland areas;
 - 2) All personnel will use appropriate safety equipment (i.e., gloves, boots, respirator or mask, etc.) when transferring product;
 - 3) A spill kit containing shovels and absorbent pads will be readily available to contain and soak up leakage or spills;
 - 4) In the event of a spill, soil contaminated with product will be immediately excavated and placed in leak proof containers;
 - 5) Personnel applying the product will be instructed on the environmental hazards of the product, importance of keeping the product out of and away from the river, and notification and containment procedures if an accidental spill occurs;
 - 6) Empty containers will be disposed of according to label directions;
 - 7) Plastic disposal bags will be used to dispose of any waste materials that have been in contact with the product, such as gloves, boots, coveralls, etc.
 - 8) Dye will be added to all herbicides to ensure good coverage and to avoid repeat applications.
 - 9) To avoid the consequences of overspray onto native plant species or onto water surfaces, spraying activities will not be conducted on windy days, or will be ceased if windy conditions arise (winds > 3 mph);
 - 10) Chemical application will not be conducted if precipitation is forecast within 72 hours. Application will be suspended prior to a precipitation event within the period of time specified by the chemical label, but not less than 24 hours.
 - 11) Should accidental spills of any herbicides occur, all application will cease immediately and appropriate spill containment and clean up procedures will ensue. Herbicides are toxic in concentrated form; therefore, should any product be accidentally spilled, flushed, or washed into the river, all application will cease immediately. Surveys will be performed immediately downstream of the application site(s) at increments of 150 feet. The surveys will be conducted to examine the river for dead/dying fish and invertebrates. The surveys will continue downstream

until no invertebrates or fish appear to be affected. The point downstream at which the toxic effects are no longer discernible will be documented and provided to the Service.

- 12) Applicators and equipment will be decontaminated at each site to prevent further spread of weeds.
- 13) A qualified biologist will monitor fish and wildlife in selected treated areas both during and after herbicide treatments to ensure that no adverse effects occur. The FWS would be notified if adverse effects are observed.

Additional comments:

It is through full consideration of the measures described above that we feel justified in the finding of effect listed below.

Implementation of the proposed treatments may temporarily generate negative effects to migratory birds; however, long-term positive effects are anticipated following native riparian habitat restoration.

*Desert tortoise is not expected to occur within the project area owing to the unsuitability of the habitat for the species.

Listed Species: Southwestern willow flycatcher (*Empidonax traillii extimus*)

Check one: ___no effect (for informational purposes, only; no response required)
 x not likely to adversely affect

Critical Habitat: ___yes _x_ no

Listed Species: Moapa Dace (*Moapa coriacea*)

Check one: ___no effect (for informational purposes, only; no response required)
 x not likely to adversely affect

Critical Habitat: ___yes _x_ no

Signature (agency representative): Candice J. Raming Date: 9/11/08
Title: MSHCP Coordinator

Bureau of Reclamation
SEP 12 2008
LAS VEGAS
FIELD OFFICE
Las Vegas, NV

U.S. FISH AND WILDLIFE SERVICE
Endangered Species Act - Section 7
Informal Consultation Form

Project Name: Effectiveness Monitoring for Tamarisk and Knapweed Control on the Upper Muddy River Floodplain

(This page to be completed by the U.S. Fish and Wildlife Service)

Service File No.: 84320-2008-I-0380

Agency/Case Project No.: NV-052-2008-145

Service Response:

Based on the information provided, the agency has determined that the action, as proposed and analyzed, is not likely to adversely affect listed species. The U.S. Fish and Wildlife Service:

X concurs _____ does not concur (see suggested alternatives) with this determination.

Justification for Response:

Flycatchers have not been detected in the project area but breed nearby on the Warm Springs Ranch. Although the project will remove habitat that may be used by flycatchers, in the long-term tamarisk removal may improve habitat for this species. The project will minimize potential impacts to the flycatcher by removing vegetation outside of the breeding season. This experiment will increase knowledge about the methods to use for restoring native riparian vegetation once tamarisk has been removed. This has the potential to help improve flycatcher habitat in many locations.

Although the project area is below the Reid Gardner Station Dam on the Muddy River, Moapa dace could be present in the river segment that runs through the former Perkins Ranch. The river reach is not surveyed for dace but is within its historical range. If Moapa dace are present in this reach they probably occur at very low numbers. The minimization measures listed in the project description should eliminate herbicide drift or spill into the Muddy River and impacts to Moapa dace. The Nature Conservancy should immediately contact the Fish and Wildlife Service if they notice any impact to aquatic animal species after herbicide application.

Conclusion:

This response constitutes informal consultation under regulations promulgated in 50 CFR § 402.14, which establish procedures governing interagency consultation under section 7 of the Endangered Species Act of 1973, as amended. This informal consultation does not authorize any take of southwestern willow flycatcher or Moapa dace.

Signature: _____

FR Robert D. Williams, Field Supervisor
Nevada Fish and Wildlife Office

Date

9/12/08