Appendix A: Distribution List

All landowners within a 0.5 mile radius of both project alignments were contacted regarding the release of the Draft Environmental Assessment. For a complete list of the property owners please contact the Bureau of Reclamation, Grand Junction Field Office. The following agencies were sent copies of the Draft Environmental Assessment:

Mr. Kyle Banks
District Wildlife Manager
Colorado Parks and Wildlife

Mr. J. Wenum
Gunnison Area Wildlife Manager
Colorado Parks and Wildlife

Mr. David Rice
Delta County Planning and Development
Delta, CO

Montrose County Planning and Development
Montrose, CO

Mr. Larry Record
Delta County Road and Bridge
Delta, CO

Ms. Patty Gelatt
Assistant Field Supervisor
US Fish and Wildlife Service

Mr. Nathan Green
US Army Corps of Engineers
Colorado West Regulatory Branch

Mr. Steve Miller
Colorado Water Conservation Board
Denver, CO

Mr. Dave Kanzer
Colorado Water Conservation District
Glenwood Springs, CO

Mr. Ralph D'Alessandro
Delta Conservation District
Delta, CO

Appendix B: Clean Water Act Exemptions

Irrigation Exemption Summary

US Army Corps of Engineers

Sacramento District
1325 J Street
Sacramento, CA 95814-2922

FARM OR STOCK POND OR IRRIGATION DITCH CONSTRUCTION OR MAINTENANCE

Pursuant to Section 404 of the Clean Water Act (33 USC 1344) and Federal Regulations (33 CFR 323.4(a)(3)), certain discharges for the construction or maintenance of farm or stock ponds or irrigation ditches have been exempted from requiring a Section 404 permit. Included in the exemption are the construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance (but not the construction) of drainage ditches. Discharges associated with siphons, pumps, headgates, wingwalls, weirs, diversion structures, and such other facilities as are appurtenant and functionally related to irrigation ditches are included in this exemption.

A Section 404 permit is required if either of the following occurs:

(1) Any discharge of dredged or fill material resulting from the above activities which contains any toxic pollutant listed under Section 307 of the Clean Water Act shall be subject to any applicable toxic effluent standard or prohibition, and shall require a permit.

(2) Any discharge of dredged or fill material into waters of the United States incidental to the above activities must have a permit if it is part of an activity whose purpose is to convert an area of the waters of the United States into a use to which it was not previously subject, where the flow or circulation of waters of the United States may be impaired or the reach of such waters reduced. Where the proposed discharge will result in significant discernible alterations to flow or circulation, the presumption is that flow or circulation may be impaired by such alteration. For example, a permit will be required for the conversion of a wetland from silvicultural to agricultural use when there is a discharge of dredged or fill material into waters of the United States in conjunction with construction of dikes, drainage ditches, or other works or structures used to effect such conversion. A discharge which elevates the bottom of waters of the United States without converting it to dry land does not thereby reduce the reach of, but may alter the flow or circulation of, waters of the United States.

If the proposed discharge satisfies all of the above restrictions, it is automatically exempted and no further permit action from the Corps of Engineers is required. If any of the restrictions of this exemption will not be complied with, a permit is required and should be requested using ENG Form 4345 (Application for a Department of the Army permit). A nationwide permit authorized by the Clean Water Act may be available for the proposed work. State or local approval of the work may also be required.

For general information on the Corps' Regulatory Program please check our web site at www.spk.army.mil/regulatory. For additional information or for a written determination regarding a specific project, please contact the Corps at the following addresses:

Sacramento Main Office-1325 J Street, Room 1480, Sacramento, CA 95814	(916) 557-5250
Redding Field Office-152 Hartnell, Redding, CA 96002	(530) 223-9534
Reno Office-300 Booth Street, Room 2103, Reno, NV 89509	(775) 784-5304
Intermountain Region Main Office-533 West 2600 South, Suite 150, Bountiful, UT 84010	(801) 295-8380
Colorado/Gunnison Basin Office-402 Rood Ave., Room 142, Grand Junction, CO 81501	(970) 243-1199
Durango Office-278 Sawyer Dr., Unit #1, Durango, CO 81301	(970) 375-9506
Frisco Office-301 W Main, Suite 202, P.O. Box 607, Frisco, CO 80443	(970) 668-9676
St. George Office-321 North Mall Drive, Suite L-101, St. George, UT 84790	(435) 986-3979

Appendix C: ESA Compliance Documents

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
445 West Gunnison, Suite 240
Grand Junction, Colorado 81501-5711

IN REPLY REFER TO:
ES/GJ-6-CO-09-F-001-GP027
TAILS 06E24100-2014-F-0169

August 11, 2014

Memorandum

To: Area Manager, Bureau of Reclamation, Grand Junction, Colorado

From: Acting Western Colorado Supervisor, Ecological Services, Grand Junction, Colorado

Subject: Consultation for Forked Tongue/Holman Ditch Company Historic Depletions for Gunnison Basin Programmatic Biological Opinion (PBO)

In accordance with section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.), and the Interagency Cooperation Regulations (50 CFR 402), the Fish and Wildlife Service (Service) transmits this correspondence to serve as the final biological opinion (BO) for the Forked Tongue/ Historic Depletions for Gunnison Basin PBO.

The Bureau of Reclamation (Reclamation) under the Colorado River Salinity Control Program has entered into a contract with the FTHDC to pipe the Forked Tongue/Holman Ditch to reduce salt loading into the Colorado River. The FTHDC's Tongue Creek diversion is estimated at 79 acre-feet per year (AF/yr). Lands irrigated by the Forked Tongue/Holman Ditch are estimated at 170 acres. No new depletions are associated with the project.

A Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin was initiated on January 22, 1988. The Recovery Program was intended to be the reasonable and prudent alternative for individual projects to avoid the likelihood of jeopardy to the endangered fishes from impacts of depletions to the Upper Colorado River Basin. In order to further define and clarify the process in the Recovery Program, a section 7 agreement was implemented on October 15, 1993, by the Recovery Program participants. Incorporated into this agreement is a Recovery Implementation Program Recovery Action Plan (RIPRAP) which identifies actions currently believed to be required to recover the endangered fishes in the most expeditious manner.

On December 4, 2009, the Service issued a final Gunnison River Basin PBO (this document is available for viewing at the following internet address: www.coloradoriverrecovery.org). The Service has determined that projects that fit under the umbrella of the Gunnison River PBO

would avoid the likelihood of jeopardy and/or adverse modification of critical habitat for depletion impacts. The Gunnison River PBO states that in order for actions to fall within the umbrella of the PBO and rely on RIPRAP to offset its depletion, the following criteria must be met.

1. A Recovery Agreement must be offered and signed prior to conclusion of section 7 consultation.

2. A fee to fund recovery actions will be submitted as described in the proposed action for new depletion projects greater than 100 AF/yr. The 2014 fee is $20.24 per AF and is adjusted each year for inflation.

3. Reinitiation stipulations will be included in all individual consultations under the umbrella of this programmatic.

4. The Service and project proponents will request that discretionary Federal control be retained for all consultations under this programmatic.

The Recovery Agreement was signed by the Service and the Water User. The depletions associated with this project are historic depletions which do not make contributions to fund recovery actions. The Reclamation has agreed to condition its approval documents to retain jurisdiction should section 7 consultation need to be reinitiated. Therefore, the Service concludes that the subject project meets the criteria to rely on the Gunnison PBO to offset depletion impacts and is not likely to jeopardize the continued existence of the species and is not likely to destroy or adversely modify designated critical habitat.

The reinitiation criteria for the Gunnison PBO apply to all projects under the umbrella of the PBO. For your information the reinitiation notice from the Gunnison River PBO is presented below.

REINITIATION NOTICE

This concludes formal consultation on the subject action. The proposed action includes adaptive management because additional information, changing priorities, and the development of the States' entitlement may require modification of the Recovery Action Plan. Therefore, the Recovery Action Plan is reviewed annually and updated and changed when necessary and the required time frames include changes in timing approved by means of the normal procedures of the Recovery Program, as explained in the description of the proposed action. Every 2 years, for the life of the Recovery Program, the Service and Recovery Program will review implementation of the Recovery Action Plan actions that are included in this BO to determine timely compliance with applicable schedules. As provided in 50 CFR sec. 402.16, reinitiation of formal consultation is required for new projects where discretionary Federal Agency involvement or control over the action has been retained (or is authorized by law) and under the following conditions:

1. **The amount or extent of take specified in the incidental take statement for this opinion is exceeded**. The terms and conditions outlined in the incidental take statement are not implemented. The implementation of the proposed reoperation of Aspinall and the Selenium Management Program will further decrease the likelihood of take caused by water depletion impacts.

2. **New information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion**, such as impacts due to climate change. In preparing this opinion, the Service describes the positive and negative effects of the action it anticipates and considered in the section of the opinion entitled "EFFECTS OF THE ACTION."

3. **The identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the BO.** It would be considered a change in the action subject to consultation if the reoperation of Aspinall and the Selenium Management Program described in this opinion are not implemented within the required timeframes. If a draft Selenium Management Program document is not completed within 18 months of the final PBO and a final document within 24 months, reinitiation of consultation will be required. Reinitiating consultation could consist of an exchange of memoranda examining the progress made on the plan and evaluating the consequences of extending the timeframe. Also, at any time, if funding is not available to implement the Selenium Management Program reinitiation of consultation will be required.

   The analysis for this BO assumed implementation of the Colorado River Main stem Action Plan of the RIPRAP because the Colorado pikeminnow *(Ptychocheilus lucius)* and razorback sucker *(Xyrauchen texanus*) that occur in the Gunnison River use the Colorado River and are considered one population. The essential elements of the Colorado River Plan are as follows: 1) provide and protect in stream flows; 2) restore floodplain habitat; 3) reduce impacts of nonnative fishes; 4) augment or restore populations; and 5) monitor populations and conduct research to support recovery actions. The analysis for the non-jeopardy determination of the proposed action that includes about 37,900 AF/year of new water depletions from the Gunnison River Basin relies on the Recovery Program to provide and protect flows on the Gunnison and Colorado Rivers.

4. **The Service lists new species or designates new or additional critical habitat, where the level or pattern of depletions covered under this opinion may have an adverse impact on the newly listed species or habitat.** If the species or habitat may be adversely affected by depletions, the Service will reinitiate consultation on the PBO as required by its section 7 regulations. The Service will first determine whether the Recovery Program can avoid such impact or can be amended to avoid the likelihood of jeopardy and/or adverse modification of critical habitat for such depletion impacts. If the Recovery Program can avoid the likelihood of jeopardy and/or adverse modification of critical habitat no additional recovery actions for individual projects would be required, if the avoidance actions are included in the Recovery Action Plan. If the Recovery

Program can't avoid the likelihood of jeopardy and/or adverse modification of critical habitat then the Service will reinitiate consultation and develop reasonable and prudent alternatives.

If the annual assessment from Reclamation's reports indicates that the operation of the Aspinall Unit to meet flow targets or that the Selenium Management Program, as specified in this opinion has not been implemented as proposed, Reclamation will be required to reinitiate consultation to specify additional measures to be taken by Reclamation or the Recovery Program to avoid the likelihood of jeopardy and/or adverse modification of critical habitat for depletions and water quality. Also, if the status of all four fish species has not sufficiently improved, as determined by the Service in a formal sufficient progress finding under provisions of the Recovery Program, Reclamation will be required to reinitiate consultation. If other measures are determined by the Service or the Recovery Program to be needed for recovery prior to the review, they can be added to the Recovery Action Plan according to standard procedures. If the Recovery Program is unable to complete those actions which the Service has determined to be required, Reclamation will be required to reinitiate consultation in accordance with ESA regulations and this opinion's reinitiation requirements.

All individual consultations conducted under this programmatic opinion will contain language requesting the applicable Federal agency to retain sufficient authority to reinitiate consultation should reinitiation become necessary. The recovery agreements to be signed by non-Federal entities who rely on the Recovery Program to avoid the likelihood of jeopardy and/or adverse modification of critical habitat for depletion impacts related to their projects will provide that such non-Federal entities also must request the Federal agency to retain such authority. Non-Federal entities will agree by means of recovery agreements to participate during reinitiated consultations in finding solutions to the problem which triggered the reinitiation of consultation.

If you have any questions regarding this consultation or would like to discuss it in more detail, please contact Barb Osmundson of our Grand Junction Ecological Services Field Office at (970) 628-7189.

Attachment

cc: FWS/UCREFRP, Denver

BOsmundson:BRForkedTonguePBOGP027.docx:081114:KM

GUNNISON BASIN RECOVERY AGREEMENT

This RECOVERY AGREEMENT is entered into this 6th day of August, 2014, by and between the United States Fish and Wildlife Service (Service) and the Forked Tongue/Holman Ditch Company (Water User).

WHEREAS, in 1988, the Secretary of Interior, the Governors of Wyoming, Colorado and Utah, and the Administrator of the Western Area Power Administration signed a Cooperative Agreement to implement the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program); and

WHEREAS, the Recovery Program is intended to recover the endangered fish while providing for water development in the Upper Basin to proceed in compliance with state law, interstate compacts and the Endangered Species Act: and

WHEREAS, the Colorado Water Congress has passed a resolution supporting the Recovery Program; and

WHEREAS, on December 4, 2009, the Service issued a programmatic biological opinion (2009 Opinion) for the Gunnison River Basin and the operation of the Wayne N. Aspinall Unit concluding that implementation of specific operation of the Aspinall Unit, implementation of a Selenium Management Plan and specified elements of the Recovery Action Plan (Recovery Elements), along with existing and a specified amount of new depletions, are not likely to jeopardize the continued existence of the endangered fish or adversely modify their critical habitat in the Gunnison River subbasin and Colorado River subbasin downstream of the Gunnison River confluence; and

WHEREAS, Water User is the owner of the Forked Tongue/Holman Ditch (Water Project), which causes or will cause depletions to the Gunnison River subbasin; and

WHEREAS, Water User desires certainty that its depletions can occur consistent with section 7 and section 9 of the Endangered Species Act (ESA); and

WHEREAS, the Service desires a commitment from Water User to the Recovery Program so that the Program can actually be implemented to recover the endangered fish and to carry out the Recovery Elements.

NOW THEREFORE, Water User and the Service agree as follows:

1. The Service agrees that implementation of the Recovery Elements specified in the 2009 Opinion will avoid the likelihood of jeopardy and adverse modification under section 7 of the ESA, for depletion impacts caused by Water User's Water Project. Any consultations under section 7 regarding Water Project's depletions are to be governed by the provisions of the 2009 Opinion. The Service agrees that, except as provided in the 2009 Opinion, no other measure or action shall be required or imposed on Water Project to comply with section 7 or section 9 of the ESA with regard to Water Project's depletion impacts or other impacts covered by the 2009 Opinion. Water User is entitled to rely on this Agreement in making the commitment described in paragraph 2.

2. Water User agrees not to take any action which would probably prevent the implementation of the Recovery Elements. To the extent implementing the Recovery Elements requires active cooperation by Water User, Water User agrees to take reasonable actions required to implement those Recovery Elements. Water User will not be required to take any action that would violate its decrees or the statutory authorization for Water Project, or any applicable limits on Water User's legal authority. Water User will not be precluded from undertaking good faith negotiations over terms and conditions applicable to implementation of the Recovery Elements.

3. If the Service believes that Water User has violated paragraph 2 of this Recovery Agreement, the Service shall notify both Water User and the Management Committee of the Recovery Program. Water User and the Management Committee shall have a reasonable opportunity to comment to the Service regarding the existence of a violation and to recommend remedies, if appropriate. The Service will consider the comments of Water User and the comments and recommendations of the Management Committee, but retains the authority to determine the existence of a violation. If the Service reasonably determines that a violation has occurred and will not be remedied by Water User despite an opportunity to do so, the Service may request reinitiation of consultation on Water Project without reinitiating other consultations as would otherwise be required by the Reinitiation Notice section of the 2009 Opinion. In that event, the Water Project's depletions would be excluded from the depletions covered by 2009 Opinion and the protection provided by the Incidental Take Statement.

4. Nothing in this Recovery Agreement shall be deemed to affect the authorized purposes of Water User's Water Project or The Service statutory authority.

6. This Recovery Agreement shall be in effect until one of the following occurs.

a. The Service removes the listed species in the Upper Colorado River Basin from the endangered or threatened species list and determines that the Recovery Elements are no longer needed to prevent the species from being relisted under the ESA; or

b. The Service determines that the Recovery Elements are no longer needed to recover or offset the likelihood of jeopardy to the listed species in the Upper Colorado River Basin; or

c. The Service declares that the endangered fish in the Upper Colorado River Basin are extinct; or

d. Federal legislation is passed or federal regulatory action is taken that negates the need for [or eliminates] the Recovery Program.

7. Water User may withdraw from this Recovery Agreement upon written notice to the Service. If Water User withdraws, the Service may request reinitiation of consultation on Water Project without reinitiating other consultations as would otherwise be required by the Reinitiation Notice section of the 2009 Opinion.

Paul Kehmeier — Aug 6, 2014

Water User Representative — Date

Forked Tongue/Holman Ditch Co. president

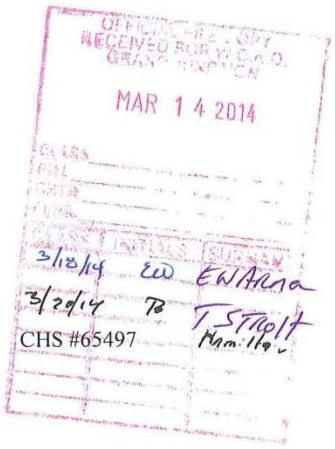
Acting — Aug 11, 2014

Western Colorado Supervisor — Date

U.S. Fish and Wildlife Service

Appendix D: Cultural Resource Compliance Documents

HISTORY Colorado



6 March 2014

Ed Warner
Area Manager
Western Colorado Area Office
US Bureau of Reclamation
445 West Gunnison Ave., Suite 221
Grand Junction, CO 81501

RE: Bostwick Park Piping Project, Delta, Delta County

Dear Mr. Warner:

Thank you for your recent correspondence received 26 February 2014, concerning the proposed replacement of a 1,056-foot portion of the East Lateral/East Vernal Canal and a 9,504-foot portion of the Bostwick Lateral with pipe. Our office has reviewed the submitted materials.

The Bostwick Lateral is less than fifty years old and is not eligible for listing on the National Register of Historic Places. The East Lateral is more than fifty years old, but we concur that it has been altered over the years and no longer retains enough integrity to be considered eligible for the National Register. Therefore, we find that no historic properties will be affected by this project.

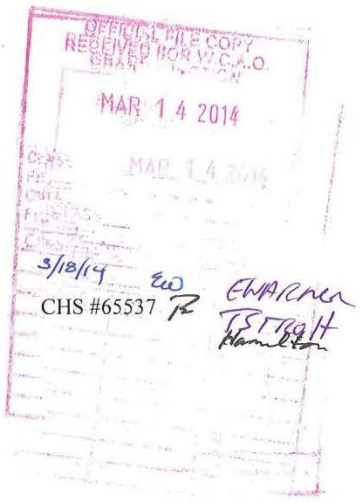
If you have any questions, please contact Joseph Saldibar, Architectural Services Manager, at (303) 866-3741.

Sincerely,

Edward C. Nichols
State Historic Preservation Officer, and
President, Colorado Historical Society

OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION
303-866-3392 * Fax 303-866-2711 * E-mail: oahp@state.co.us * Internet: www.historycolorado.org

HISTORY Colorado



6 March 2014

Ed Warner
Area Manager
Western Colorado Area Office
US Bureau of Reclamation
445 West Gunnison Ave., Suite 221
Grand Junction, CO 81501

RE: Forked Tongue Piping Project, Eckert vicinity, Delta County

Dear Mr. Warner:

Thank you for your recent correspondence dated 27 February 2014, concerning the proposed replacement of 1.93 miles of the Forked Tongue Ditch (5DT.1965) with pipe. Our office has reviewed the submitted materials. Although the Forked Tongue Ditch is more than fifty years old, it does not appear to be eligible for listing in the National Register of Historic Places. Therefore, we find that no historic properties will be affected by this project.

If you have any questions, please contact Joseph Saldibar, Architectural Services Manager, at (303) 866-3741.

Sincerely,

Edward C. Nichols
State Historic Preservation Officer, and
President, Colorado Historical Society

Appendix E: Delta & Montrose County Noxious Weed List

Delta County

1.08 Weed Lists: State of Colorado

Under the Colorado Noxious Weed Act, the Colorado Department of Agriculture has appointed a Colorado State Noxious Weed Advisory Board. The Colorado State Noxious Weed Advisory Board and the Department of Agriculture Commissioner have designated the following classifications and management goals for the noxious weed species below:

List A Species

List A species in Colorado are designated by the Commissioner for eradication. These weeds are either relatively rare or have not been found in Colorado. Species that are in **bold print** are known to exist in Delta County as of January 1, 2009.

African rue (*Peganum harmala*)
Camelthorn (*Alhagi pseudalhagi*)
Common crupina (*Cupina vulgaris*)
Cypress spurge (*Euphorbia cyparissias*)
Dyers woad (*Isatis tinctoria*)
Giant salvinia (*Salvinia molesta*)
Hydrilla (*Hydrilla verticillata*)
Meadow knapweed (*Centaurea pratensis*)
Mediterranean sage (*Salvia aethopsis*)
Medusahead (*Taeniatherum caput-medusae*)
Myrtle spurge *(Euphorbia myrsinites)*
Orange hawkweed *(Hieracium aurantiacum)*
Purple loosestrife (*Lythrum salicaria*)
Rush skeletonweed (*Chondrilla juncea*)
Sericea lespedeza (*Lespedeza cuneata*)
Squarrose knapweed (*Centaurea virgata*)
Tansy ragwort (*Senecio jabobaea*)
Yellow starthistle (*Centaurea solstitialis*)

List B Species

List B weed species are species for which the Commissioner (in consultation with the state noxious weed advisory committee, local governments, and other interested parties) develops and implements state noxious weed management plans designed to stop the continued spread of these species. Species that are in **bold print** are known to exist in Delta County as of January 1, 2009

Absinth wormwood (*Artemisia absinthium*)
Black henbane *(Hyoscyamus niger)*
Bouncingbet (*Saponaria officinalis*)

Bull thistle ***(Cirsium vulgare)***
Canada thistle ***(Cirsium arvense)***
Chinese clematis *(Clematis orientalis)*
Common tansy ***(Tanacetum vulgare)***
Common teasel (*Dipsacus fullonum*)
Dalmatian toadflax *(Linaria dalmatica)*
Dame's rocket ***(Hesperis matronalis)***
Diffuse knapweed *(Centaurea diffusa)*
Eurasian watermilfoil *(Myriophyllum spicahim*)
Hoary cress or Whitetop ***(Cardaria draba)***
Houndstongue ***(Cynoglossum officinale)***
Leafy spurge ***(Euphorbia esula)***
Moth mullein (***Verbascum blattaria***)
Musk thistle ***(Carduus nutans)***
Oxeye daisy ***(Chrysantheum leucanthemum)***
Perennial pepperweed (***Lepidium latifolium***)
Plumeless thistle ***(Carduus acanthoides)***
Quackgrass (***Elytrigian repens***)
Redstem filaree (***Erodium cicutarium***)
Russian knapweed ***(Centaurea repens)***
Russian olive (***Elaneagnus angustifolia***)
Saltcedar ***(Tamarix ramossissima)***
Scentless chamomile ***(Matricaria perorate)***
Scotch thistle (***Onopordum acanthium***)
Spotted knapweed ***(Centaurea maculosa)***
Spurred anoda (***Anoda cristata***)
Sulfur cinquefoil (*Potentilla recta*)
Venice mallow (***Hibiscus trionum***)
Wild caraway ***(Carum carvi)***
Yellow nutsedge (***Cyperus esculentus***)
Yellow toadflax ***(Linaria vulgaris)***

List C Species

List C weed species are species for which the Commissioner (in consultation with the state noxious weed advisory committee, local governments, and other interested parties) will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands. The goal of such plans will be to stop the continued spread of these species and provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species. Species that are in **bold print** are known to exist in Delta County as of January 1, 2009

Cheatgrass ***(Bromus tectorum)***
Chicory (***Cichorium intybus***)

Common burdock (*Arctium minus*)
Common mullein *(Verbascum thapsus)*
Field bindweed *(Convolvulus arvensis)*
Halogeton (*Halogeton glomeratus*)
Johnsongrass (*Sorghum halepense*)
Jointed goatgrass (*Aegilops cylindrica*)
Perennial sowthistle (*Sonchus arvensis*)
Poison hemlock (*Conium maculatum*)
Puncturevine (*Tribulus terrestris*)
St. Johnswort *(Hypericum perforatum*)
Velvetleaf *(Abutilon theophrasti*)
Volunteer rye (*Secale cereale*)
Wild-prose millet (*Panicum miliaceum*)

1.09 Delta County Noxious Weed List

Yellow starthistle (*Centaurea solstitialis)*
Purple loosestrife (*Lythrim salicaria)*
Myrtle spurge *(Euphorbia myrsinites)*
Common burdock (*Arctium minus*)
Diffuse knapweed *(Centaurea diffusa)*
Spotted knapweed (*Centaurea maculosa*)
Russian knapweed *(Centaurea repens)*
Hoary cress or Whitetop *(Cardaria draba)*
Leafy spurge *(Euphorbia esula)*
Canada thistle *(Cirsium arvense)*
Musk thistle *(Carduus nutans)*
Scotch thistle (*Onopordum acanthium*)
Bull thistle *(Cirsium vulgare)*
Yellow toadflax *(Linaria vulgaris)*
Oxeye daisy *(Chrysantheum leucanthemum)*
Poison hemlock (*Conium maculatum*)
Halogeton (*Halogeton glomeratus*)
Russian olive (*Elaneagnus angustifolia*)
Saltcedar *(Tamarix ramossissima)*

II: GEOGRAPHICAL OVERVIEW OF COUNTY DESIGNATED NOXIOUS WEED INFESTATIONS IN DELTA COUNTY

2.01 Description of Delta County

1. Major Natural Features:
   a. Lakes and Reservoirs: Crawford Reservoir, Sweitzer Lake, Fruitgrowers Reservoir, numerous Grand Mesa lakes and reservoirs.

Montrose County

5.2 Colorado Noxious Weed List

Though many of the following weed species aren't known to be present in Montrose County, any List A species should be reported to the Weed Mitigation Department immediately. Questions concerning weed identification and treatment can often be answered by visiting the Colorado Department of Agriculture's web site at http://www.colorado.gov/cs/Satellite/Agriculture-Main/CDAG/1174084048733. Any additional questions should be directed to the Montrose County Weed Mitigation Department.

Though many of the following species aren't likely to be encountered, species known to have been present in Montrose County will be indicated with bold print.

List A species in Colorado that are designated by the Colorado Commissioner of Agriculture for eradication:
African rue (Peganum harmala)
Camelthorn (Alhagi pseudalhagi)
Common crupina (Crupina vulgaris)
Cypress spurge (Euphorbia cyparissias)
Dyer's woad (Isatis tinctoria)
Giant salvinia (Salvinia molesta)
Hydrilla (Hydrilla verticillata)
Meadow knapweed (Centaurea pratensis)
Mediterranean sage (Salvia aethiopis)
Medusahead (Taeniatherum caput-medusae)
Myrtle spurge (Euphorbia myrsinites)
Orange hawkweed (Hieracium aurantiacum)
Purple loosestrife (Lythrum salicaria)
Rush skeletonweed (Chondrilla juncea)
Sericea lespedeza (Lespedeza cuneata)
Squarrose knapweed (Centaurea virgata)
Tansy ragwort (Senecio jacobaea)
Yellow starthistle (Centaurea solstitialis)

List B weed species are species for which the Colorado Commissioner of Agriculture, in consultation with the State Noxious Weed Advisory Committee, local governments, and other interested parties, has developed and implemented state noxious weed management plans designed to stop the continued spread of these species:
Absinth wormwood (Artemisia absinthium)
Black henbane (Hyoscyamus niger)
Bouncingbet (Saponaria officinalis)
Bull thistle (Cirsium vulgare)
Canada thistle (Cirsium arvense)
Chinese clematis (Clematis orientalis)
Common tansy (Tanacetum vulgare)
Common teasel (Dipsacus fullonum)
Corn chamomile (Anthemis arvensis)

Cutleaf teasel (Dipsacus laciniatus)
Dalmatian toadflax, broad-leaved (Linaria dalmatica)
Dalmatian toadflax, narrow-leaved (Linaria genistifolia)
Dame's rocket (Hesperis matronalis)
Diffuse knapweed (Centaurea diffusa)
Eurasian watermilfoil (Myriophyllum spicatum)
Hoary cress (Cardaria draba)
Houndstongue (Cynoglossum officinale)
Jointed goatgrass (Aegilops cylindrica)
Leafy spurge (Euphorbia esula)
Mayweed chamomile (Anthemis cotula)
Moth mullein (Verbascum blattaria)
Musk thistle (Carduus nutans)
Oxeye daisy (Chrysanthemum leucanthemum)
Perennial pepperweed (Lepidium latifolium)
Plumeless thistle (Carduus acanthoides)
Quackgrass (Elytrigia repens)
Russian knapweed (Acroptilon repens)
Russian-olive (Elaeagnus angustifolia)
Salt cedar (Tamarix chinensis, T.parviflora, and T. ramosissima)
Scentless chamomile (Matricaria perforate)
Scotch thistle (Onopordum acanthium)
Scotch thistle (Onopordum tauricum)
Spotted knapweed (Centaurea maculosa)
Spurred anoda (Anoda cristata)
Sulfur cinquefoil (Potentilla recta)
Venice mallow (Hibiscus trionum)
Wild caraway (Carum carvi)
Yellow nutsedge (Cyperus esculentus)
Yellow toadflax (Linaria vulgaris)

List C weed species are species for which management goals will not be to stop continued spread but to provide additional education, research, and biological control resources to jurisdictions that choose to require management.
Chicory (Cichorium intybus)
Common burdock (Arctium minus)
Common mullein (Verbascum thapsus)
Common St. Johnswort (Hypericum perforatum)
Downy brome (Bromus tectorum)
Field bindweed (Convolvulus arvensis)
Halogeton (Halogeton glomeratus)
Johnsongrass (Sorghum halepense)
Perennial sowthistle (Sonchus arvensis)
Poison hemlock (Conium maculatum)
Puncturevine (Tribulus terrestris)
Redstem filaree (Erodium cicutarium)

Velvetleaf (Abutilon theophrasti)
Wild proso millet (Panicum miliaceum)

Appendix F: Habitat Scoring and Draft Habitat Replacement Plan

Habitat Impacts Of Bostwick Park Ditch
Piping Project

By Michael Zeman
Natural Resource Concepts & Solutions, LLC
Wildlife and November 25, 2013

The Bostwick Park Ditch Piping Project will put approximately 1.55 miles of open ditch into underground pipe. The elevation of the project location is about 7000 feet and located 5.5 miles northeast of Montrose, Colorado. The project will be built mostly along the edge of irrigated farm lands and at the base of drier, pinion-juniper foothills . Juniper trees, rabbit brush, sagebrush, willow, and wild rose are the most prevalent types of vegetations found along the ditch. Other plant species observed include: cottonwoods; four-winged saltbush; prickly pear cactus; bulrush; carex; cattails; yellow clover; and a number of small forbs & grasses. Other invasive weed encountered included: Canada thistle; Russian knapweed; whitetop; chicory; cheat grass; milkweed; burdock; kochia, and mullein.

Many of the native riparian plant species found on and near the ditch sections being piped will be lost because pipe construction will be in the current ditch & there are no other sources of water close by. There are only a limited number of trees along the proposed ditch piping area and most of them are junipers. Habitat segment #2 (See H 2 in habitat map labeled *Proposed Bostwick Park Piping Project - Segments H 2, 3, 4)* will create the greatest loss of habitat. A wide service road was built alongside the ditch in this segment and reduce the amount of habitat to be lost due to piping. There are also many weed species along the ditch that can be reduced when a weed treatment program is implemented at the completion of the project.

There is a proposed alternative route for piping that cuts across a pinion-juniper hillside to save on the amount of pipe needed for the project. It is recommended that this alternative not be implemented. It will cause a 33% increase in habitat loss as opposed to staying in the existing ditch. It will also creates habitat fragmentation and increase the chance for more invasive weed to get started in the disturbed soils.

Five staging areas for equipment and pipe storage were proposed and evaluated for possible impacts on habitat. Staging Area 1 should have no significant impact on habitat as it is on the edge of an existing field and heavily used by livestock. It is recommended that Staging Area 2 not be used because much of the area is on an existing sagebrush/juniper flat that would have to be cleared to make it useable. Staging Area 1 is only a short distance away and with only a few native plant species on it, makes it a much better site. Proposed Staging Area 3 was originally about twice the size it is now and extended into a sagebrush flat to the north side of the area. It is recommended that the staging area utilize only the already cleared section of land north of the current field. The same thing applies to Staging Area 4 except the sagebrush flat is to the west of the staging area. Staging Area 5 is the middle of an area filled with sagebrush, rabbit brush, and other native plants. It also heavily infested with species like Russian knapweed and cheat grass. It is recommended that this staging area be reduced to one acre in size. This staging area is also considered Habitat Segment 5 (H5). The estimate losses of this habitat segment and the others are found in the table labeled *Habitat Quality Scoring - Bostwick Park Proposed Piping Project.*

A total of 5.13 habitat units * are expected to be lost due to the Bostwick Park Piping Project (See table labeled *Proposed Bostwick Park Piping Project - Habitat Areas Affected*). The habitat loss increases to 6.83 habitat credits if the alternate piping route is implemented. Impacts to habitat along the piping project can be minimized by: avoiding the removal of trees as much as possible when installing the pipe; proper choice of plants & replanting methods used when reclaiming the area over the pipeline; and implementing an effective weed control program over the disturbed areas.

* Calculations were made using criteria set forth in the *Basinwide Salinity Control Program: Procedures for Habitat Replacement* - (A manual developed by the Bureau of Reclamation and U.S. Fish & Wildlife Service).

11/25/2013

Habitat Quality Scoring
Bostwick Park Proposed Piping Project

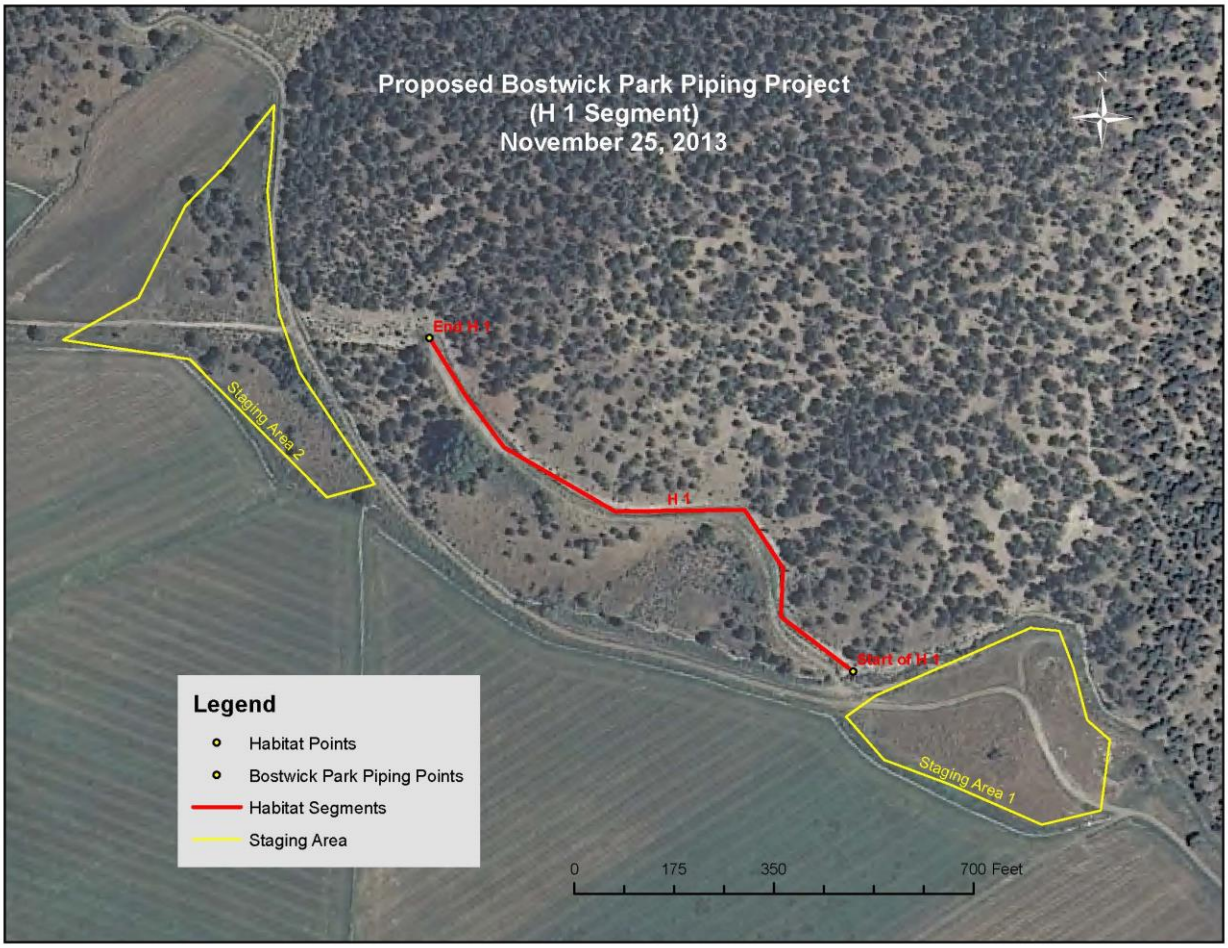
Habitat Site	H 1		H 2		H 3		H 4	
Habitat Type	Shrub/Forb		Shrub/Forb		Shrub/grass		Tree/Shrub	
Mapped Acres/Adjustment	0.48	100%	4.09	100%	1.00	100%	1.31	100%
	Before	After	Before	After	Before	After	Before	After
Vegetation Diversity	4	2	5	2	4	3	5	3
Stratification	10	7	10	7	10	6	10	6
Native vs. Non-Native species	8	8	5	7	5	5	8	6
Noxious Weeds	8	9	6	8	2	7	9	8
Overall Vegetative Condition	10	10	10	10	10	10	10	10
Disease Additional scoring	0	0	0	0	0	0	0	0
Interspersion of open water	1	0	1	0	0	0	5	5
Connectivity	5	5	5	5	5	5	4	2
Uniqueness or Abundance	4	2	5	2	3	2	0	0
Water Supply	4	2	6	1	0	0	10	8
Alteration	6	6	8	8	4	3		
Raw Scores	60	51	61	50	43	41	61	48
Habitat Quality Score (HQS)	**6.0**	**5.1**	**6.1**	**5.0**	**4.3**	**4.1**	**6.1**	**4.8**
Habitat Score Difference	0.90		1.10		0.20		1.30	
Habitat Credits Lost	**0.43**		**4.50**		**0.20**		**1.70**	
Total Habitat Credits Lost	**6.83**							

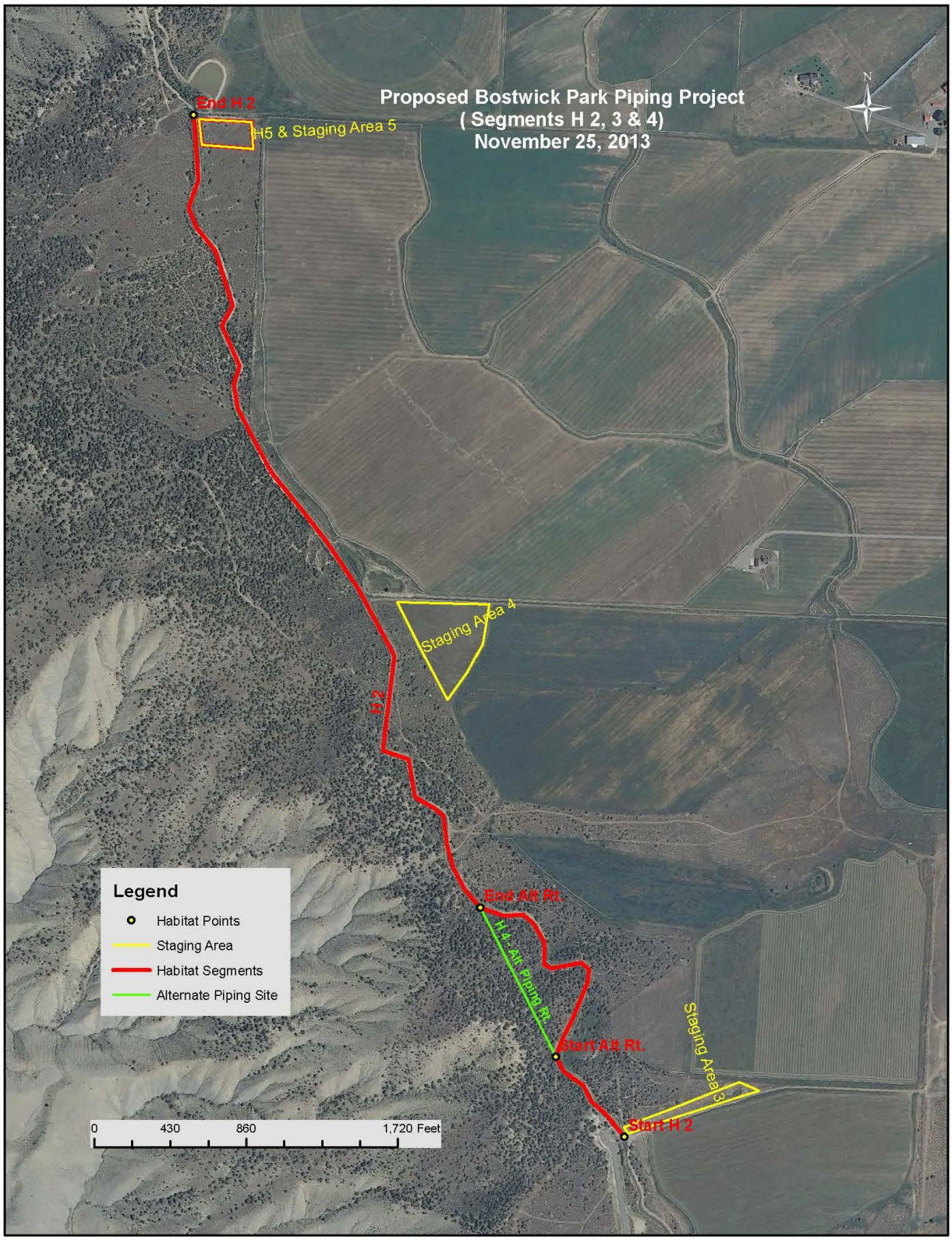
11/25/2013

Proposed Bostwick Park Piping Project
Habitat Areas Affected

Habitat Segment	Habitat Type	Feet of Ditch	Width of Impact (Ft.)	Acres of impact	Habitat Score Difference	Habitat Credits Lost
H1	**Shrub/Forb**	1049	20	0.48	0.9	0.43
H2	**Shrub/Forb**	7122	25	4.09	1.1	4.50
H3	**Shrub/Grass**			1.00	0.2	0.20
H4	**Trees/Shrub**	949	60	1.31	1.3	1.70

Total Habitat Credit Loss	**6.83**	**Credits**
Total Habitat Credit Loss Without Using Alternate Route (H4)	**5.13**	**Credits**


Proposed Bostwick Park Piping Project
(H 1 Segment)
November 25, 2013
N
End H 1
H 1
Start of H 1
Staging Area 2
Staging Area 1
Legend
Habitat Points
Bostwick Park Piping Points
Habitat Segments
Staging Area
0
175
350
700 Feet


Proposed Bostwick Park Piping Project
(Segments H 2, 3 & 4)
November 25, 2013
N
End H 2
H5 & Staging Area 5
Staging Area 4
H 2
End Alt Rt.
H 4 Alt. Piping Rt.
Start Alt Rt.
Staging Area 3
Start H 2
Legend
Habitat Points
Staging Area
Habitat Segments
Alternate Piping Site
0
430
860
1,720 Feet

Habitat Impacts Of Forked Tongue/Holman Ditch Piping Project

By Michael Zeman
Wildlife and Natural Resource Concepts & Solutions, LLC
November 22, 2013

The Forked Tongue/Holman Ditch Piping Project will put approximately 1.92 miles of open ditch into underground pipe. The elevation of the project location is about 5300 feet and located 1.5 miles west of Eckert, Colorado. The project will be built mostly along the edge of irrigated farm lands with a portion of it going along the base of some adobe foothills . Rabbit brush, sagebrush, and 4-winged saltbush are the three most prevalent types of vegetations found along the ditch. Other plant species observed include: Fremont cottonwoods; sumac; wild rose; bullrush; carex; cattails; and a number of small forbs & grasses. Invasive weed encountered included: Russian olive; Canada thistle; Russian knapweed; whitetop; chicory; cheatgrass; burdock; and tamarisk.

Several sections of the piping are adjacent to irrigated fields and to Tongue Creek, which flows alongside the upper part of the ditch. The proximity of these water sources will help lessen the effect on existing habitat when the open ditch is put into pipe. This will especially help the limited number of trees along the ditch. Some of these trees will be lost in the construction of the project. The plant diversity and habitat value along the ditch is limited because of current farming practices and the closeness of the county road to the ditch. The greatest loss of habitat will come from piping the ditch along the base of the adobe hillside, on the west side of the county road. The ditch has created a narrow green-belt along its length that will disappear after the ditch is piped. The vegetation includes a fair amount of tamarisk, Russian olive, & Russian knapweed, but also some sedges, small cottonwoods, and carex species. Changes in expected habitat values are listed in the table labeled *Habitat Quality Scoring - Forked Tongue/Holman Ditch Piping Project*.

Many of the areas along the ditch are heavily infested with weeds and could benefit from the piping project. A weed management program is required as part of the reclamation plan and to be implemented after the project is completed. Soils used to bury the pipeline will be reseeded and the use of selective herbicides will help keep the weeds from returning.

Six staging areas have been designated for the project and all but one should cause minimal affect on existing habitat (See overview map labeled *Forked Tongue/Holman Ditch Piping Project).* Stage Area 6 is the exception and is at the point of diversion of the ditch on Tongue Creek. This area should not be used for storing pipe or equipment as it could cause unnecessary damage to some very good riparian habitat along the creek. If this staging area is used, then piping should placed in the adjacent field rather than clearing land in the riparian area. The other staging areas are located on existing fields, cleared areas around buildings or service roads, or in areas along the ditch where the habitat loss has already been calculated. Use of these area should cause little to no permanent damage on habitat.

A total of 6.70 habitat units * are expected to be lost due to the piping of the Forked Tongue/Holman Ditch (See table labeled *Forked Tongue/Holman Piping Project - Habitat Areas Affected*). Impacts to habitat along the piping project can be minimized by: avoiding the removal of trees as much as possible when installing the pipe; proper choice of plants & replanting methods used when reclaiming the area over the pipeline; and implementing an effective weed control program over the disturbed areas.

* Calculations were made using criteria set forth in the *Basinwide Salinity Control Program: Procedures for Habitat Replacement* - (A manual developed by the Bureau of Reclamation and U.S. Fish & Wildlife Service).

11/22/2013

Forked Tongue/Holman Piping Project
Habitat Areas Affected

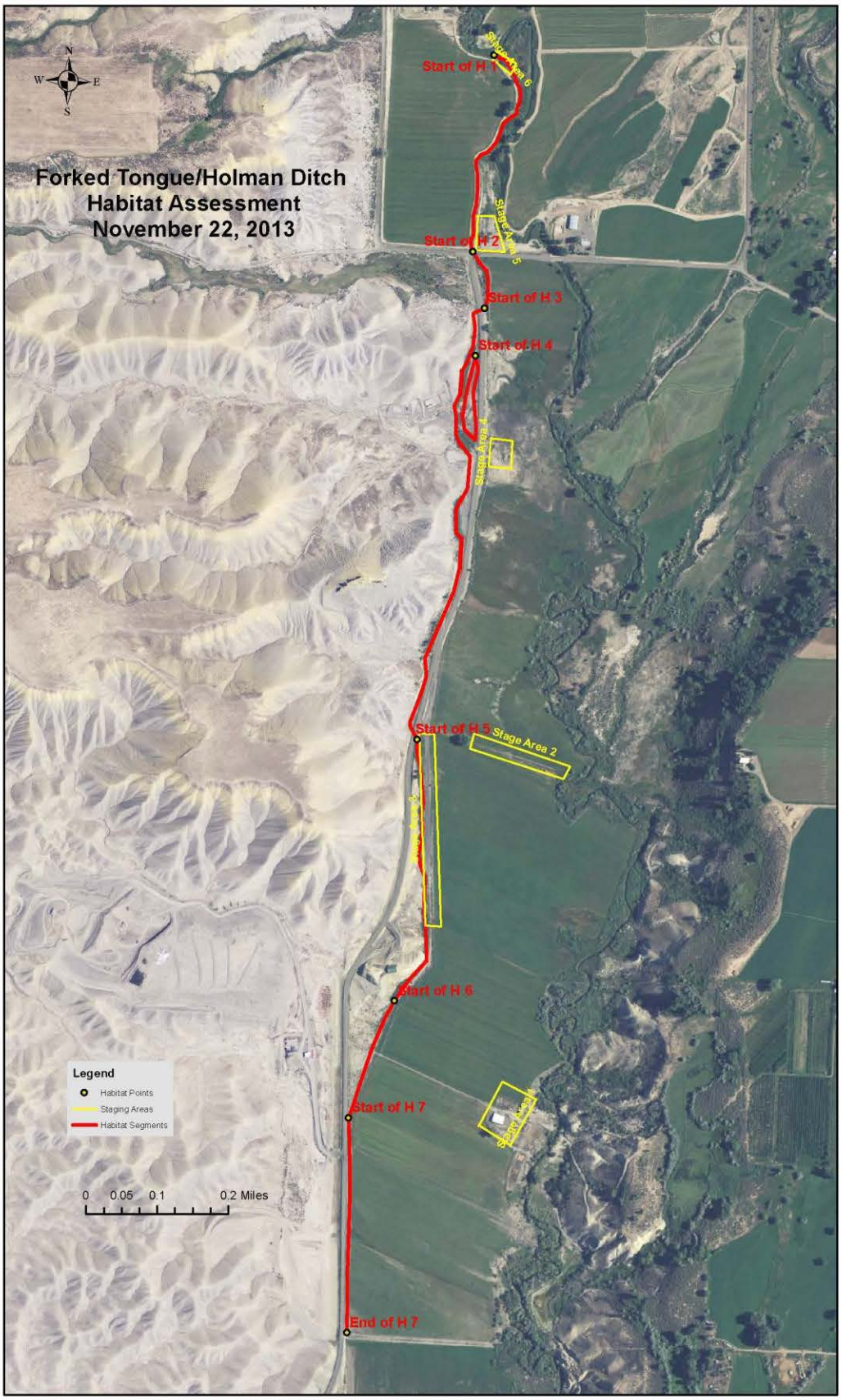
Habitat Point	Habitat Type	Feet of Ditch	Width of Impact (Ft.)	Acres of Impact	Habitat Score Differnce	Habitat Credits Lost
H1	Shrub/Forbs	1691	30	1.16	0.4	0.46
H2	Shrub/Forbs	458	30	0.32	0.3	0.10
H3	Shrub/Forbs	3428	30	2.36	1.6	3.78
H4	Grass/Forbs			0.82	0.7	0.57
H5	Shrub/Forbs	2042	30	1.41	0.9	1.27
H6	Grass/Forbs	937	20	0.43	0.2	0.09
H7	Grass/Forbs	1596	20	0.73	0.6	0.44
					Total Habitat Credits Lost	**6.70**

11/22/2013

Habitat Quality Scoring
Forked Tongue/Holman Ditch Piping Project

Habitat Site	H 1		H 2		H 3		H 4		H 5		H 6		H 7	
Mapped Acres/Adjustment	1.16	100%	0.32	100%	2.36	100%	0.82	100%	1.41	100%	0.43	100%	0.73	100%
	Before	After	Before	After	Before	After	Before	After		After	Before	After	Before	After
Vegetation Diversity	5	5	5	5	4	1	2	1	5	3	3	2	1	1
Stratification	10	10	8	6	10	4	3	1	10	6	4	2	2	2
Native vs. Non-Native species	7	8	7	7	6	2	6	6	8	8	5	6	5	5
Noxious Weeds	2	8	6	8	4	9	8	9	7	9	2	8	2	9
Overall Vegetative Condition	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Disease Additional scoring	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interspersion of open water	1	0	1	0	1	0	0	0	1	0	1	0	1	0
Connectivity	5	5	5	5	3	3	3	3	5	5	5	5	5	5
Uniqueness or Abundance	6	6	6	6	4	1	2	1	4	2	2	1	1	1
Water Supply	6	4	6	4	6	2	4	0	4	2	4	4	4	4
Alteration	4	4	4	4	4	4	2	2	3	3	3	3	2	2
Raw Scores	56	60	58	55	52	36	40	33	57	48	39	41	33	39
Habitat Quality Score (HQS)	**5.6**	**6**	**5.8**	**5.5**	**5.2**	**3.6**	**4**	**3.3**	**5.7**	**4.8**	**3.9**	**4.1**	**3.3**	**3.9**
Habitat Score Difference	0.4		0.3		1.6		0.7		0.9		0.2		0.6	
Habitat Credits Lost/Segment	**0.46**		**0.10**		**3.78**		**0.57**		**1.27**		**0.09**		**0.44**	

Total Habitat Credits Lost 6.70 Credits


Forked Tongue/Holman Ditch
Habitat Assessment
November 22, 2013
N
W
E
S
Start of H 1
Start of H 2
Start of H 3
Start of H 4
Start of H 5
Start of H 6
Start of H 7
End of H 7
Stage Area 6
Stage Area 5
Stage Area 4
Stage Area 2
Stage Area 3
Stage Area 1
Legend
Habitat Points
Staging Areas
Habitat Segments
0 0.05 0.1 0.2 Miles