CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

PROJECT APPLICATION FORM

Name of Project: Treatment of Tamarisk (Tamarix spp.) within the Tijuana Slough National Wildlife Refuge

Project Applicant: Southwest Wetlands Interpretive Association (SWIA)

Applicant Contact Person: Mayda Winter

Applicant Phone Number: (619) 575-0550

Applicant Email Address: swiaprojects@aol.com

REQUIRED INFORMATION

Applications that do not contain a discussion regarding each of the following items will not be considered for inclusion. If the item is included in a detailed supplemental report, please include the report and indicate where the information is located.

Problem Statement:

The Tijuana River Valley contains extensive riparian and salt marsh habitats that have been invaded by the invasive, non-native plant, Tamarisk (or salt cedar; Tamarix spp.). Tamarisk has completely taken over some of these habitats and these monotypic stands do not function normally or support the desired assemblages of native species. The primary goal of this project is to improve these valuable wetlands by controlling Tamarisk. The project will build upon other successful Tamarisk-treatment projects that SWIA has conducted in the area.

Work Plan containing tasks and deliverables compartmentalized into partial funding opportunities, if applicable.

The project will involve the following tasks:

1. Treatment of invasives
2. Monitoring and reporting -- quarterly reports and final report
3. Administration -- monthly statements

Timeline (from funding approval) with milestones and end dates.

Start date: anytime, preferably January to September, e.g., 1 June

Year 1 (September to February*) -- initial treatment of invasives (we need about 6 weeks)

Year 2 (September to February*) -- follow-up treatment of invasives (we need about 2 weeks)

End date: anytime after second treatment, e.g., 31 May (i.e., a two-year project).

* the treatments need to be outside the breeding seasons of the listed bird species

Budget broken down into tasks.

The estimated budget for a small* project would be:

1. Treatment of invasives	$37,000
2. Monitoring and reporting	$6,000
3. Administration	$7,000
Total	$50,000

* Projects can range from $50,000 to $500,000 depending on the size of the project area.

Discuss all permitting requirements, including CEQA, and their status. If exempt, cite applicable statute.

The project is already fully permitted and ready to proceed.

The project has CEQA, NEPA and Streambed Alteration Agreement approvals.

Watershed(s) affected.

Tijuana River

Describe if this project can be a basis for additional funding from other sources.

The proposed project is part of a larger on-going program to treat the Tamarisk along the entire main channel of the estuary. We have received funding recently from the Tijuana Slough National Wildlife Refuge and from US Fish and Wildlife-Coastal Program to do other neighboring portions of the larger project. We plan to continue to build on the work we've already done in the area over the next several years; this work will include more Tamarisk-treatments and the planting of native species.

Monitoring, success criteria, and other tools to track long-term success.

The monitoring will provide information on: (a) Number of acres treated; (b) Effectiveness of the herbicide treatment; (c) The overall appearance of the site before and after treatment; and (d) whether the success criteria have been met.

Success criteria: (a) the Tamarisk have received an initial and at least one follow-up treatment; and (b) the percent cover of the targeted, non-native, invasive species is less than 5% cover.

Description of how the project is resilient to climate change.

The project involves the removal of a long-lived, invasive tree from critical high-marsh and transitional areas. The project fits in well with the long-term goals for the Research Reserve regarding sea level rise and transgression of habitats. [These goals are included in the new Climate Change Vulnerability Assessment and Adaptation Strategy.] This project will help make the estuary more "climate-ready."

Applicant's ability/authority to receive and distribute funds.

SWIA is a 501(c)(3) non-profit organization dedicated to the education in and acquisition, preservation and restoration of wetlands. Founded in 1979, SWIA has managed more than $40 million in wetlands projects in and around the Tijuana River Valley and South San Diego Bay.

Is the project to conduct work that is required by any entity/agency? (e.g. cleanup or mitigation)

No

PROPOSED SEP PROJECT
APPLICATION CHECKLIST and ADDITIONAL INFORMATION

Treatment of Tamarisk (*Tamarix* spp.) within the Tijuana Slough National Wildlife Refuge

Eligibility Requirements

This project meets three of the priorities. They are:

1. Does the project address an environmental justice (EJ) issue or benefit a disadvantaged community (DAC)?
3. Does the project promote preservation or restoration of aquatic ecosystems in the San Diego Region?
4. Does the project implement or further recovery of streams, wetlands, and riparian systems?

Project Attributes

1. Does the project directly contribute to improvements of water quality objectives and/or beneficial uses?

Yes, the project would improve water quality and beneficial uses (e.g., EST, RARE, REC2, WILD).

2. Does the project propose measurable environmental outcomes?

Yes, for the amount of funding that is available, we would be able to provide the number of acres of habitat from which the tamarisk will be removed. Follow up monitoring will be provided to ensure that treated tamarisk do not regrow and that the site naturally recovers with native vegetation.

3. Does the project demonstrate sustained longevity of environmental outcomes (e.g., conservation, maintenance endowments, easements, monitoring)?

Yes, the project will have long-term success and provide continuing coastal wetland benefits in perpetuity because the project site is completely within Tijuana Slough National Wildlife Refuge and the U.S. Fish & Wildlife Service has commitments to long-term conservation of the Refuge.

4. Is the project part of a larger vetted, adopted, or established plan with support from multiple and diverse partners?

Yes, the project implements a recommended action in the *Comprehensive Management Plan for the Tijuana River National Estuarine Research Reserve* (TRNERR 2010). The plan states (p.94) that: the treatment of tamarisk in the riparian corridor (i.e., the proposed project site) is one of the highest priorities.

5. Does the project improve conditions for a 303(d) limited segment or preserve conditions in a high quality water body?

Yes, the Tijuana River is on the 303(d) list of impaired water bodies and this project will improve the habitat along the main channel.

6. Does the project improve a designated priority listed in a Water Quality Improvement Plan?

Unsure.

7. Does the project improve conditions of a key beneficial use category in a key area?

Yes, this project would improve the habitat of an area that is specifically set aside for conservation of rare, native species, including the Ridgeway Rail (clapper rail).

8. Does the project address the source of the problem at/near the source of the problem?

Yes, the project reduces the seed supply of tamarisk at the source of the problem.

9. Does the project address problems to sensitive/vulnerable/rare places/waters/uses?

Yes, the project addresses the worst invasive plant in the Tijuana Estuary (Whitcraft *et al.* 2007). The Tijuana Estuary is widely known for its diverse and abundant bird community, and because of its significance to regional bird populations was recently recognized as a *Wetland of International Importance* by the Ramsar Convention.

10. Can the project be used for leverage for other funding/actions/benefits?

Unsure.

11. Does the project provide a cost-effective means of attaining water quality goals?

Yes, the project will be cost-effective because the people conducting the treatments have been doing this work in the valley for many years. Their approach and all methods proposed for use in the project are well established, proven effective, technically feasible and environmentally sound.

12. Does the project integrate outreach and education to targeted audiences?

If necessary, an outreach component could be added, such as a display or presentation at the Tijuana Estuary Visitor's Center. This center attracts numerous visitors, including local school children.

Applicant Attributes

1. Does the applicant have an established record of project completion with the Water Board?

Yes, SWIA received a Prop 40 grant in 2006-08 that was administered by the Water Board.

2. Does the applicant have a record of project completion with other awarding agencies?

Yes, SWIA is a 501(c)(3) non-profit organization dedicated to the preservation and restoration of wetlands, particularly those in the Tijuana River Valley. Since 1979, SWIA has managed more than $40 million in wetland restoration projects in the valley.

3. Does the applicant demonstrate a commitment to continue the water quality/restoration effort into the future, beyond the elements which are sought for funding?

Yes, SWIA is a permanent organization. It was founded in 1979.

4. Does the applicant have the institutional stability and capacity to complete the project including the ability to accomplish the work and provide the products and reports expected?

Yes.

PROPOSED SEP PROJECT – ADDITIONAL INFORMATION

Won't tamarisk just re-invade?

Research in the valley shows that tamarisk along the main channel invaded under unusual circumstances in the 1980s and that they are unlikely to reinvade the project site after treatments. In summary:

(1) Tamarisk seeds have specific requirements for invasion / germination – the soil needs to be moist with freshwater and bare, and these conditions need to be present during summer when seeds are being dispersed.

(2) In this Mediterranean climate it is extremely rare for the estuarine soils to be bare and moist with fresh water during summer.

(3) But during 1983, the Rodriguez Dam was drawn down for emergency repair and there were abnormally high freshwater flows during spring, summer and fall in the Tijuana Estuary (Zedler *et al.* 1992). This led to the severe lowering of salinities in the main tidal channel near the inlet and suitable conditions for the invasion of *Tamarix* into the salt marshes around this channel.

(4) Most of the *Tamarix* currently growing in the proposed project area can be traced back to that invasion in 1983 (Whitcraft *et al.* 2007).

(5) Adult *Tamarix* can survive brackish conditions and they shade out low growing salt marsh plants.

(6) Once the *Tamarix* are treated they are killed, and the bare space is reinvaded by other species.

(7) *Tamarix* does not reinvade these treatment sites because the specific requirements for germination seldom occur.

Environmental Justice (EJ)

The reserve is adjacent to an environmental justice community (Imperial Beach) and downstream from some backcountry EJ communities. This project is located along a trail system that is open to the general public for free and will improve site for REC2, etc. In addition, this is a project that EJ communities cannot afford to do and do not have the knowledge and resources to conduct.

Maps and Photos

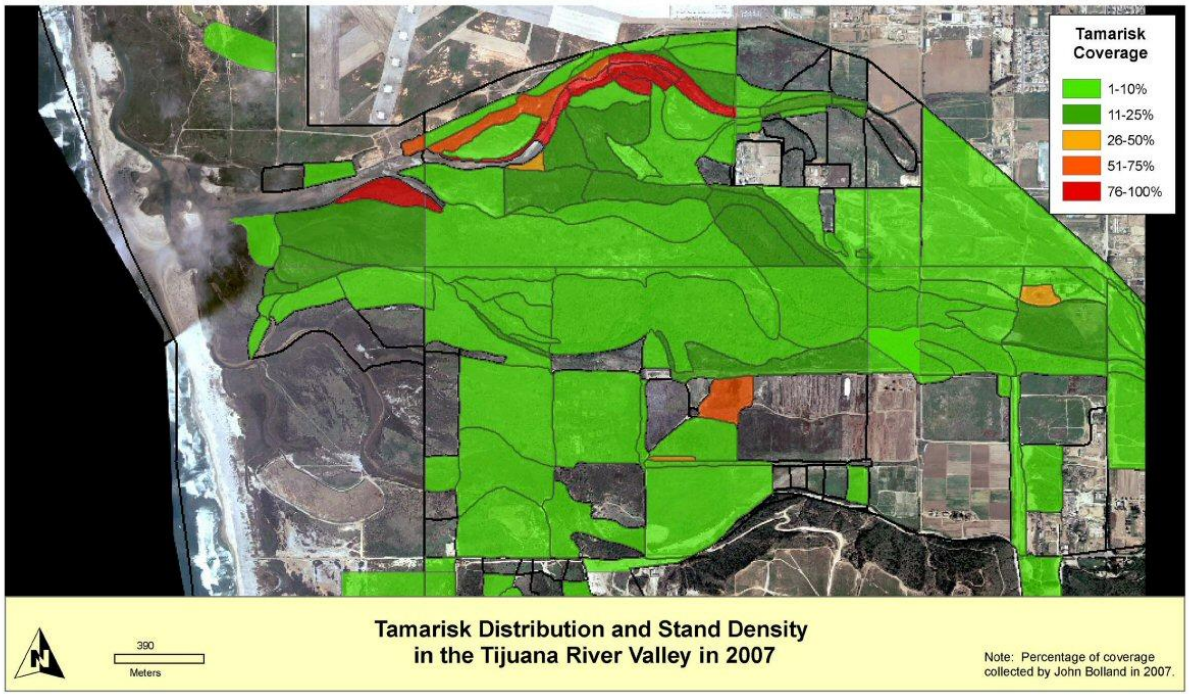

Figure 1. Part of the Tijuana River Valley has been severely invaded by tamarisk (red). The project area is located in the red zone in the far north.

Figure 2. Where tamarisk is abundant it has converted the salt marshes and the salt marsh-upland transition zones into virtually monotypic stands of tamarisk. This photo shows several large tamarisk trees growing in the salt marsh in the project area.

Figure 3. Map showing the proposed project site along the Tijuana River within the Tijuana Slough National Wildlife Refuge.

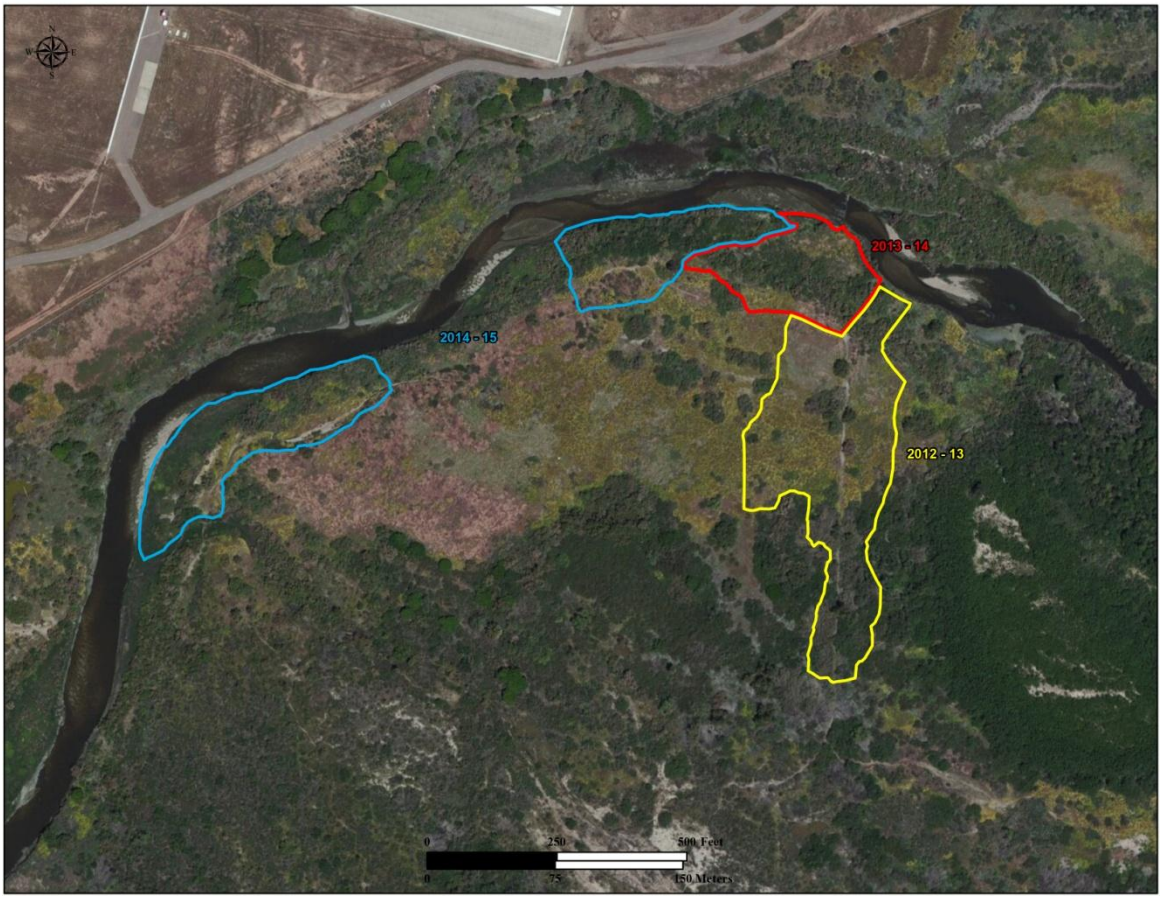

Figure 4. Map of the main channel showing the previously treated sites near the project area. All of these projects were funded by the US Fish & Wildlife Service. The proposed project areas will be both east and west of these already-treated sites.

Figure 5. The tamarisk growing along the main channel inside the project area is very tall and dense. The tamarisk canopy often extends over the intertidal zone and into the channel (as shown here). The tamarisk will be cut with chainsaws and the cut-stumps will be treated with herbicide.

Figure 6. Illustration of the natural recovery of the vegetation after tamarisk treatment. The photo on the left was taken three months after the tamarisk was treated (note the treated tamarisk stumps in the center; April 13, 2015). The bare patch was originally under the tamarisk canopy. The photo on the right was taken six months after the tamarisk was treated (note the bare space has been abundantly invaded by native salt marsh species; July 24, 2015). The native species invading the bare space are *Salicornia virginica* and *Suaeda esteroa*.