

## Methods for Removing Exotic Plant Species On the Lower Colorado River



Before any site is cleared of exotic vegetation there are several important questions that must be answered.

- Is this area considered critical habitat for threatened endangered species?
- Will this affect any threatened and/or endangered species?
- Are endangered species surveys and consultation with the USFWS required before implementation of this project?
- Do we need to avoid the migration and nesting periods of the SWFL and YCRA during clearing operations?
- Do we have ALL! required NEPA/ESA compliance, access permits, SHPO consultation and contracts executed for the beginning of the project?
- Does this area require a wetland delineation and/or 404 permit
- Are there any hobos/homeless living in these areas?
- Have we called blue stake and are we aware of any above or below ground utilities that may be affected by clearing?
- Have we submitted a storm water pollution prevention plan to Arizona Department of Environmental quality?
- Have we spent too much money on compliance and permits to kill tamarisk? (just kidding)

### Removal of Monotypic Dense Tamarisk Stands



This method is considered in areas with very dense stands of mature tamarisk that have little or no native vegetation. These areas usually do not contain any wetlands or saturated soils.

- If applicable, make sure the area has an approved jurisdictional delineation with the US Army Corps of engineers (COE) to identify any clearing areas that will occur within wetland and aquatic environments.
- If there are jurisdictional areas within the clearing site you must obtain a 404 permit from the COE before proceeding with clearing operations.
- Make sure you have all NEPA compliance, licenses and permits to access and clear area and apply herbicides.

- Use a D-5 or greater size bulldozer with a brush rake. Clear all vegetative material and pile in windrows that are between 150'-250' apart. Identify, tag and avoid any valuable existing native habitat. If you will be working within a wetland use a low ground pressure (LGP) dozer or similar equipment made for low ground pressure use.
- Push and stack all exotic plant material into the windrows and walk over stacked material with bulldozer to compact piles. Two other alternatives here include piling and burning all cleared material or getting a tub grinder and mulching all cleared material.
- Take brush rake off dozer blade and clear top 12-18" of soil and root crown and push soil onto cleared plant material piles. If possible have a root ripper on the back of dozer to further uproot tamarisk root crown.
- Finish grade site using dozer blade, box scraper or laser leveling unit
- Spray resprouts of tamarisk when they come up with Pathfinder or Garlon 4 herbicide. Make sure you do not spray in or near aquatic and wetland habitats. Make sure when you spray there is no breeze to avoid herbicide drift and death of surrounding native vegetation.
- Respray site and do follow up mechanical removal as needed
- Plant lots of native trees

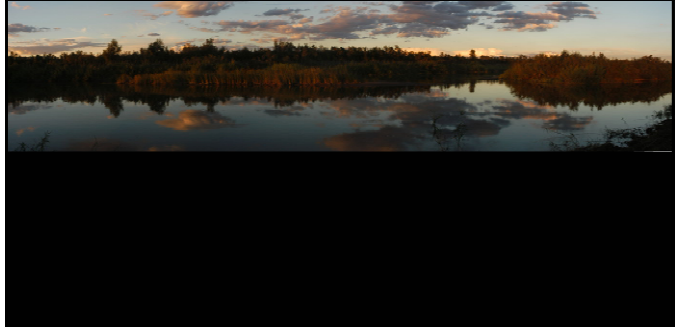








Removal of tamarisk in areas with a mix of native and non-native habitat



This method is considered in areas that have a mixture of exotic/native habitat.

- Use a bobcat, excavator or front end loader with a masticator on the front. Use masticator to mulch all exotic plant material to the ground. The use of the masticator is excellent for clearing in tight areas that have native vegetation that needs to be avoided.

- Use a d-5 or greater bulldozer to remove 12-18" of root crown in areas where the masticator has done its job. Be careful to not disturb soil areas around existing native vegetation.

- Spray resprouts of tamarisk when they come up in the spring with pathfinder or Garlon 4 herbicide. Make sure you do not spray in or near aquatic and wetland habitats. Make sure when you spray there is no breeze to avoid herbicide drift and death of surrounding native vegetation.

- Respray site and do follow up mechanical removal as needed

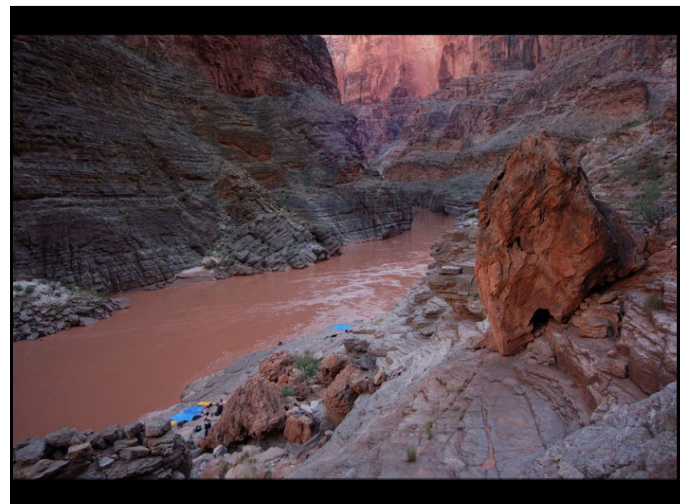
- Plant lots of native trees





This method is considered in areas where using/mobilizing heavy machinery is not possible. Many of these areas also have fairly high densities of native habitat mixed in with the tamarisk/arrundo.

- Use chain saws and/or hand saws and pruners to cut tamarisk at base of trunk.
- If you have the equipment, mulch all cut material and pile mulch in suitable area. If you do not have this capability pile material in discreet areas (for aesthetics in parks and canyons) or use for brush fencing.
- Immediately spray resprouts with pathfinder or Garlon 4 herbicide.
- Do follow up spraying as needed
- Enjoy the boat ride



**Are you still awake?**









## Removal of Phragmites/Arrundo



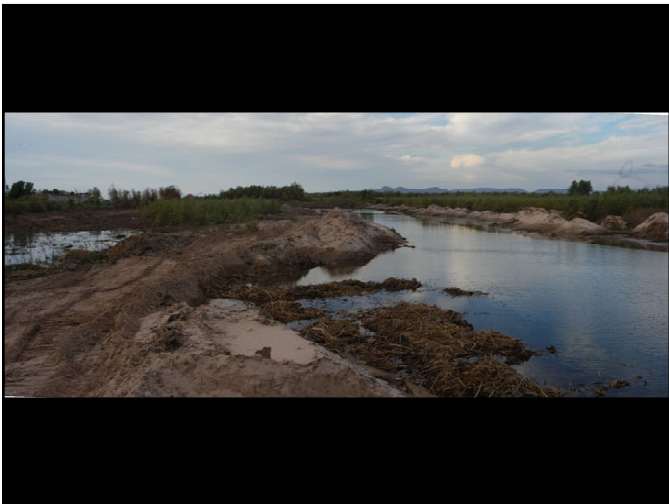
Phragmites and arrundo make tamarisk look like an easy plant to remove. Some wildlife refuges have all but given up on the removal of these plants because they are so aggressive and hard to control. This is especially true on banklines and in wetland areas, where they mostly occur. We are still experimenting on the removal of this species and do not have any great successes to report to date. This is the current method that we are using

- Use a D-6 or greater size bulldozer with a brush rake. Clear all vegetative material and pile in windrows that are between 150'-250' apart. Identify, tag and avoid any valuable existing native habitat. If you will be working within a wetland use a low ground pressure (LGP) dozer or similar equipment.
- Push and stack all exotic plant material into windrows and walk over stacked material with bulldozer to compact piles.
- Take brush rake off dozer blade and clear top 18-24" of soil and root crown and push soil onto cleared plant material piles. If possible have a root ripper on the back of dozer to further uproot tamarisk root crown
- Finish grade site using dozer blade, tractor and box scraper or tractor and laser level

### Who Has the Answer?

- Spray resprouts of phragmites when they come up with pathfinder or Garlon 4 herbicide. Make sure you do not spray in or near aquatic and wetland habitats. Make sure when you pray there is no breeze to avoid herbicide drift and death of surrounding native vegetation.
- Disc site with tractor and the largest disc boom you can find
- Spray resprouts of phragmites when they come up with pathfinder or Garlon 4 herbicide.
- Disc site with tractor and the largest disc boom you can find
- Respray site and do follow up mechanical removal as needed
- Another alternative here is to actually burn the area and then continue with grubbing, spraying and disking as needed.
- If you have the available water and irrigation you can also plant a cover crop of rye grass, sterile field crops or a native grass seed mix before tree planting to help out compete the phragmites.
- Once you plant the site you should continue with mowing the phragmites until the native trees have developed a solid canopy. You will never remove all phragmites from the site but with a lot of work you can establish a mostly native stand of trees







### **A Few Notes on Herbicide Use**

- Make sure any contractors and/or employees have taken a herbicide/applicators course and have a current Certified Applicators License
- ALWAYS read herbicide label before spraying!!!
- Garlon 4 and Pathfinder are oil based herbicides and more effective for tamarisk and phragmites than Round Up, which is water based.
- The best time to spray/disc is mid/late spring when phragmites is flowering

**Don't Feel Overwhelmed  
It's Job Security**



**Questions?**