

Proposed treatment of Brazilian pepper in abandoned agricultural fields in Big Cypress National Preserve.

General Information:

Areas in Big Cypress National Preserve (BICY) that supported agricultural activities prior to becoming conservation lands present a difficult challenge for exotic plant management. Typically, these areas were either farmed or grazed and subsequently abandoned. The disturbed soil and/or altered hydrology that accompanied these agricultural activities provide excellent conditions for exotic invasive plants to establish. In these areas, Brazilian pepper (*Schinus terebinthifolius*), old world climbing fern (*Lygodium microphyllum*) cogon grass (*Imperata cylindrica*), tropical soda apple (*Solanum viarum*) and caesarweed (*Urena lobata*) are commonly encountered, serious exotic invasive plants. These species usually dominate the subsequent community succession that occurs after agricultural activities stop by outcompeting native species.

Brazilian pepper is the most significant invasive species encountered in abandoned agricultural areas in BICY. Land use history and extent of modification both play a role in how this species impacts these areas. Some old fields are currently monocultural stands of Brazilian pepper. In other areas, Brazilian pepper is patchy with pasture grasses (eg. Bahia grass *Paspalum notatum*) dominating the open areas. These areas probably become completely dominated by Brazilian pepper as pasture grasses are shaded out. Brazilian pepper is also found as a canopy co-dominant with early successional native hardwood species such as willow (*Salix caroliniana*), salt bush (*Baccharis glomeruliflora*) wax myrtle (*Myrica cerifera*) and cabbage palm (*Sabal palmetto*). The long term community type that results from this combination of species is unknown. In general, these areas are thought to be of low quality to native wildlife.

As with any exotic invasive, Brazilian pepper infestations disrupt natural communities, displace native organisms and hinder restoration of native plant communities. In addition, Brazilian pepper infestations produce a great number of seeds that are then dispersed by animals to adjacent natural areas. As a result of lifecycle characteristics, abundance and widespread distribution within BICY, the Exotic Plant Management Program has identified this species as a top priority. The majority of BICY exotic plant management resources are currently being devoted to Brazilian pepper control.

Currently, Brazilian pepper in BICY is controlled by ground crews. Workers apply herbicide to individual trees with backpack sprayers and pull seedlings where possible. Using ground crews affords several advantages to exotic plant control. Treatment can be extremely selective which is critical for effective control in intact natural communities. In addition, smaller individuals and individuals of other species (eg. Old World climbing fern) are more likely to be found by ground crews. However, using ground crews to treat heavily infested areas is labor intensive and costly. The cost to treat dense infestations of Brazilian pepper can exceed \$4000/acre when trees are sprayed by hand.

In an effort to reduce costs and enhance Brazilian pepper control capabilities in BICY, aerial application of herbicide to densely infested abandoned agricultural fields is being recommended. In this treatment method, a helicopter equipped with a boom sprayer is used to apply herbicide to a large area in a short time. As a result, aerial treatment can reduce costs to as little as \$125/acre.

In addition, restricting treatment to abandoned fields minimizes the need for selectivity. Ground crews will continue to be used to treat all other infestations.

Proposed Treatment Methods:

Seven sites have been selected as appropriate for aerial treatment. These sites have been visited on the ground and mapped using aerial photography and GeoLink sketch mapping software. Individual site descriptions follow this section. At each site, Brazilian pepper will be treated with a foliar application of 2 oz/acre Metsulfuron methyl

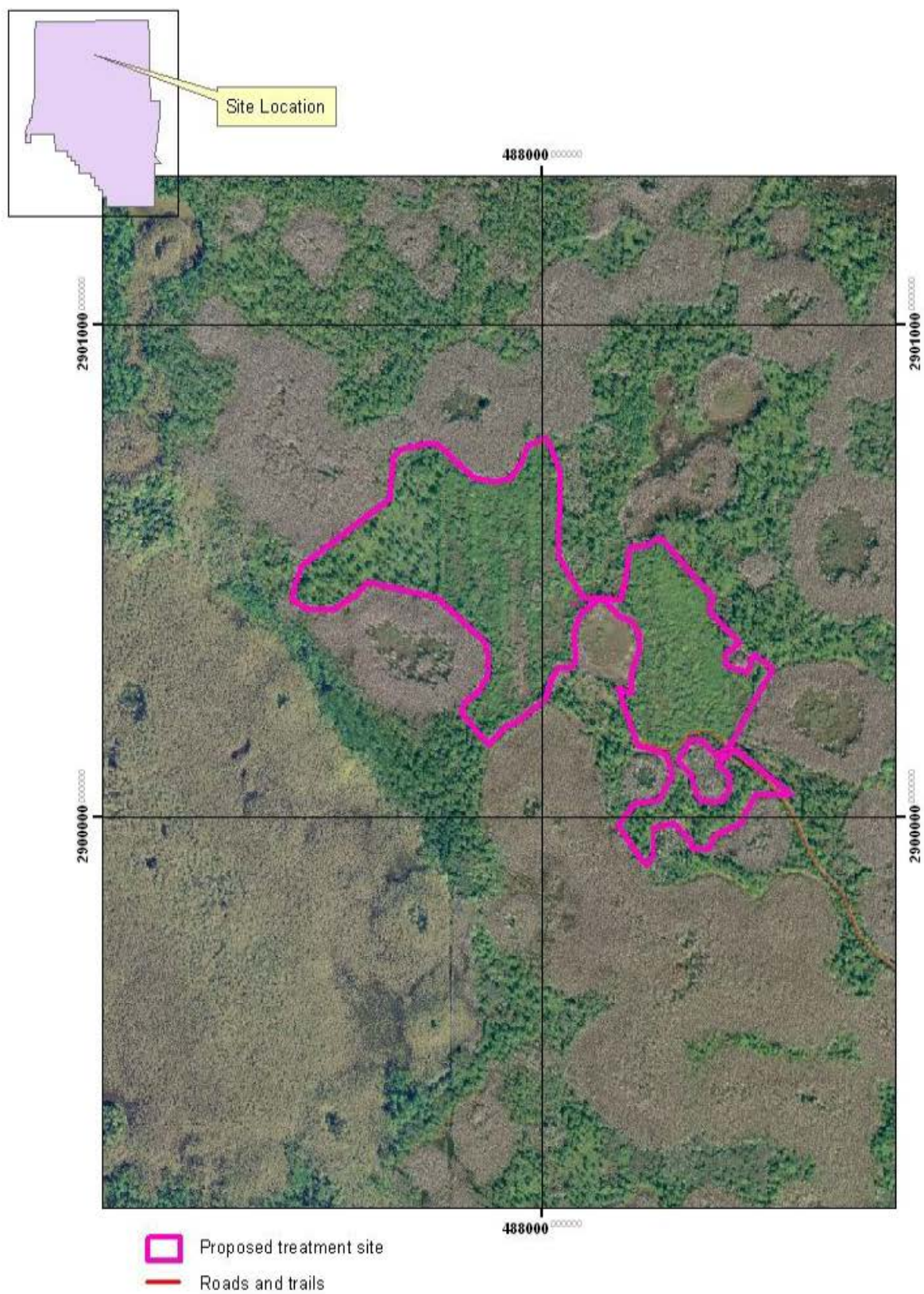
(Escort) solution in water with a surfactant using a boom sprayer attached to a contracted helicopter. This herbicide was chosen because of its selectivity for Brazilian pepper and Lygodium. Applications will only be made in appropriate environmental conditions as required by law. All treatment sites will be closed to visitors and staff while spraying occurs and until foliage dries completely. Signs indicating this closure will be placed at access points in the vicinity of the treatment site.

Records will be kept as required by the National Park System (NPS), and the Florida Department of Environmental Protection (DEP). These include measurements of environmental conditions at the site, amount and concentration of herbicide applied and area treated. Records will be submitted to DEP and will be retained at BICY in paper form and in the exotic plant treatment database. Within 12 months of aerial treatment, ground crews will revisit the site to treat any individuals that were not killed and seedlings that have emerged since the treatment. Surrounding natural communities will be surveyed by ground crews and all significant exotic invasive species will be treated with appropriate methods. It is anticipated that one or more additional retreatments will be needed to ensure maximum control of these areas.

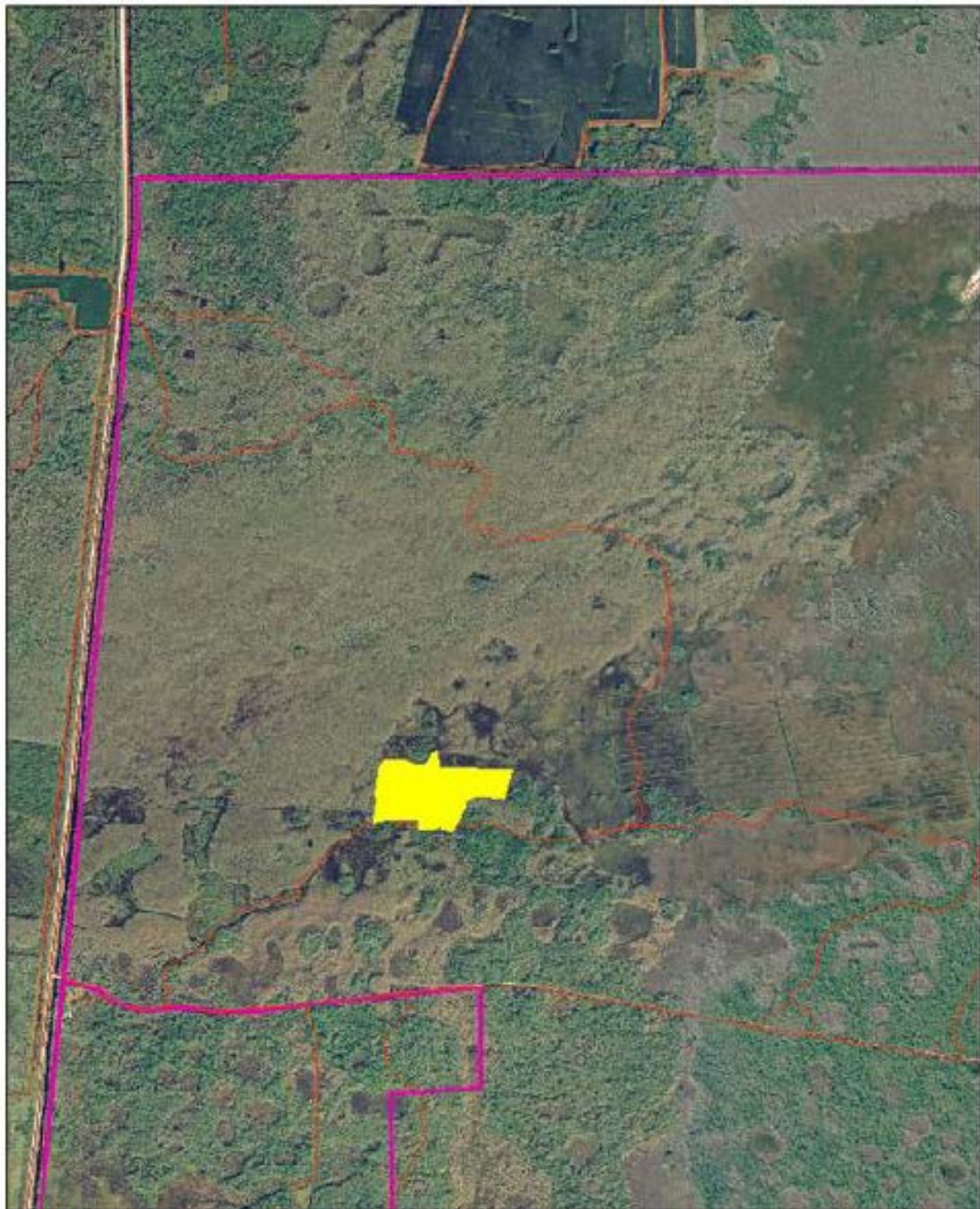
Site Descriptions:

Six sites have been tentatively identified as candidates for aerial treatment of Brazilian pepper in two management units: five in the Addition Lands north of I-75 and one in the Bear Island Unit. These sites, totaling approximately 300 acres represent some of the most severely infested areas in Big Cypress.

Proposed aerial treatment site: Addition Lands, Site 1.

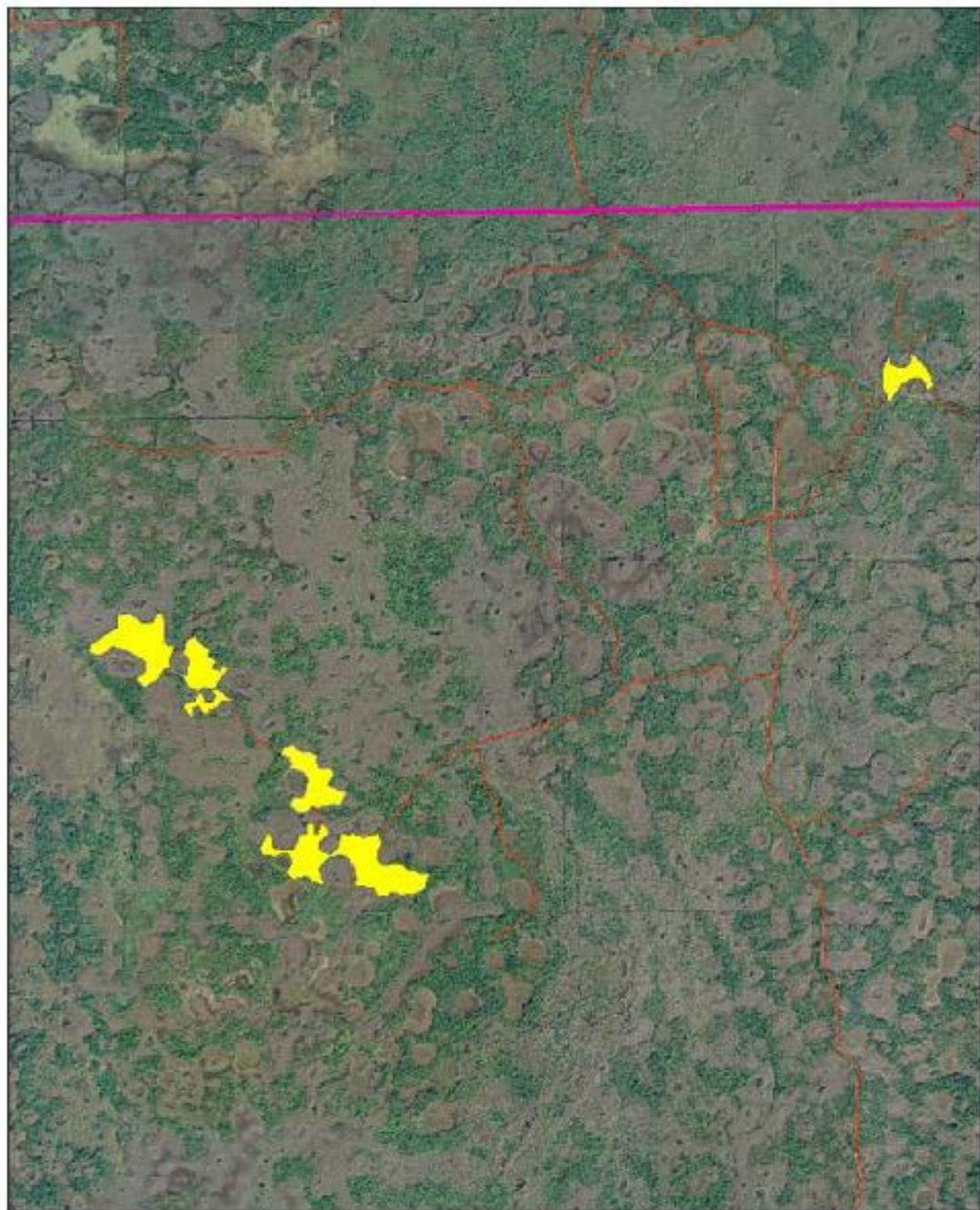


Bear Island area proposed for aerial treatment
of Brazilian pepper: 1 site, 36 acres.



- Proposed treatment site
- Preserve Boundary
- Roads and trails

Addition Land areas proposed for aerial treatment of Brazilian pepper: 4 sites, 198 acres total.



-  Proposed treatment site
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