



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
SOUTH ATLANTIC DIVISION, CORPS OF ENGINEERS
ROOM 9M15, 60 FORSYTH ST., S.W.
ATLANTA GA 30303-8801

CESAD-PDS-P

20 December 2007

MEMORANDUM FOR Commander, Jacksonville District (CESAJ-PD/Marie G. Burns) ^{1/2/08}

SUBJECT: Approval of Peer Review Plan (PRP) for the CERP: Melaleuca Eradication Project and Other Exotic Plants – Implement Biological Controls in the State of Florida

1. Reference CESAJ-PD memo dated 13 December 2007 subject as above.
2. The subject Peer Review Plan (PRP) and conclusion that an external peer review of this project is not necessary for the following reasons (1) no novel subject matter will be produced by the report, (2) controversial subject matter is minor with team consensus, 3) subject matter is not precedent-setting, 4) interagency interest has not been unusually significant, and 5) there are no unusually significant economic, environmental, or social effects to the nation is approved.
3. The District should immediately post the Final PRP to its website and provide a link to the DDN-PCX for their use. Before posting to the website, the names of the Corps/Army employees should be removed in accordance with CECW-CP guidance memo on "Peer Review Process" dated March 2007.
4. The point of contact for this action is Mr. Terry Stratton at (404) 562-5228.

Encl

WILBERT V. PAYNES
Chief, Planning and Policy Community
of Practice

**PEER REVIEW PLAN
FOR
MELALEUCA ERADICATION PROJECT AND OTHER
EXOTIC PLANTS – IMPLEMENT BIOLOGICAL CONTROLS
COMPREHENSIVE EVERGLADES RESTORATION PLAN (CERP)
OCTOBER 2007**

For questions or comments regarding this Peer Review Plan, please forward your comments to:

Title	Telephone	Email
Project Manager	904-232- 1071	Click here to email the Project Manager

THE INFORMATION CONTAINED IN THIS PEER REVIEW PLAN IS
DISTRIBUTED SOLELY FOR THE PURPOSE OF PREDISSEMINATION PEER
REVIEW UNDER APPLICABLE INFORMATION QUALITY GUIDELINES. IT HAS
NOT BEEN FORMALLY DISSEMINATED BY THE U.S. ARMY CORPS OF
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**PEER REVIEW PLAN
FOR
MELALEUCA ERADICATION PROJECT AND OTHER
EXOTIC PLANTS – IMPLEMENT BIOLOGICAL CONTROLS**

**COMPREHENSIVE EVERGLADES RESTORATION PLAN (CERP)
OCTOBER 2007**

1. PURPOSE

This Peer Review Plan (PRP) provides a technical peer review mechanism ensuring that quality products are developed during the course of the study by the Jacksonville District (SAJ). All processes, quality control, quality assurance, and policy review will be done to complement each other producing a review process that identifies and resolves technical and policy issues during the course of the study and not during the final study stages.

The PRP is intended to describe the processes that will be implemented to independently (of the Project Team) evaluate the technical sufficiency of the planning study. The PRP is a collaborative product of the Project Delivery Team (PDT) and the National Planning Center of Expertise for Ecosystem Restoration (ECO-PCX). The ECO-PCX shall manage the peer review processes, which for this study includes an Independent Technical Review (ITR).

ITR is a critical examination by a qualified person or team, predominantly within the Corps of Engineers (Corps), which was not involved in the day-to-day technical work that supports a decision document. ITR is intended to confirm that such work was done in accordance with clearly established professional principles, practices, codes and criteria informed by Engineering Regulation (ER) 1105-2-100.

EPR is in addition to ITR, and is added to the Corps existing review process in special cases where the risk and magnitude of the proposed project are such that a critical examination by a qualified person or team outside of the Corps and not involved in the day-to-day production of a technical product is necessary. EPR will similarly be added in cases where information is based on novel methods, presents complex challenges for interpretation, contains precedent-setting methods or modes, presents conclusions that are likely to change prevailing practices, or is likely to affect policy decisions that have a significant impact. In the absence of a technical requirement high project cost, by itself, may necessitate EPR.

2. REFERENCES

ER 1105-2-100, "Planning Guidance Notebook
EC 1105-2-408, "Peer Review of Decision Documents", dated May 31, 2005

CECW-CP Memorandum, "Peer Review Process", dated March 30, 2007
Water Resources Council's Economic and Environmental Principles and Guidelines for
Water and Related Land Resources Implementation Studies, Chapter II - (National
Economic Development NED) Benefit Evaluation Procedures (March 10, 1983).

3. PROJECT/STUDY BACKGROUND

First authorized by Congress in 1948, the Central and Southern Florida (C&SF) Project provides the South Florida ecosystem with flood control, regional water supply, prevention of saltwater intrusion, preservation of fish and wildlife, recreation, and navigation. In fulfilling these objectives, the project has had unintended adverse effects on the natural environment that constitutes the Everglades and South Florida ecosystem. As a result, in 2000 Congress authorized the Comprehensive Everglades Restoration Plan (CERP) or "Plan" to restore, preserve, and protect the South Florida ecosystem while providing for other water-related needs of the region. CERP consists of structural and operational modifications to the C&SF Project and will be implemented over about 35 years. Together these components are expected to deliver benefits to improve the ecological functioning of over 2.4 million acres of the South Florida ecosystem, improve urban and agricultural water supply, improve deliveries to coastal estuaries, and improve regional water quality conditions, while maintaining the existing levels of flood protection.

CERP included a feature to evaluate Melaleuca Eradication and Other Exotic Plants. This feature included the following elements: 1) construct a new quarantine and research facility, 2) renovation and improvements to the current quarantine facility in Gainesville, and 3) implement biological controls (mass rearing, field release, establishment, and field monitoring) of approved biological control agents. These elements were originally proposed for implementation under the Critical Projects program authorized by the Water Resources Development Act of 1996.

This report will focus on implementing biological controls. The purpose of this element is to increase the effectiveness of biological control technologies to manage Melaleuca and other invasive exotic species. The projected cost to implement this element was \$5.8 million in October 1999 dollars.

A wealth of additional project information may be found at the following weblink:
http://www.evergladesplan.org/pm/projects/proj_95_melaleuca.aspx

3.1 Study Authority

Section 601 of the Water Resources Development Act of 2000 (PL 106-541), Congress approved the Central and Southern Florida (C&SF) Project Comprehensive Review Study Integrated Feasibility Report and Programmatic Environmental Impact Statement (known as the "Comprehensive Plan"), which describes and outlines the Comprehensive Everglades Restoration Plan (CERP):

(b) Comprehensive Everglades Restoration Plan -

(1) Approval -

(A) IN GENERAL. —Except as modified by this section, the Plan is approved as a framework for modifications and operational changes to the Central and Southern Florida Project that are needed to restore, preserve, and protect the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection. The Plan shall be implemented to ensure the protection of water quality in, the reduction of the loss of fresh water from, and the improvement of the environment of the South Florida ecosystem and to achieve and maintain the benefits to the natural system and human environment described in the Plan, and required pursuant to this section, for as long as the project is authorized.

Additionally, the conceptual plan of the Melaleuca Eradication and Other Exotic Plants project was authorized and guidance was given in the Corps' Information Paper, dated 21 May 2002, entitled "Proposed Plan for Fiscal Year (FY) 03 Exotic and Invasive Species Management and Control". This Information Paper was approved by the Office of the Assistant Secretary of the Army (Civil Works)(OASA (CW)) and allows for, among other things, the following:

Implement Biological Agents

"Controlled release of biological agents as planned under the Critical project program."

3.2 Location / Study Area Maps

This report covers the entire Central and Southern Florida study area, which encompasses approximately 18,000 square miles from Orlando to the Florida Reef Tract. The Kissimmee River, Lake Okeechobee and the Everglades are the dominant watersheds that connect a mosaic of wetlands, uplands, coastal areas, and marine areas. This study area includes all or part of the following 16 counties: Monroe, Miami-Dade, Broward, Collier, Palm Beach, Hendry, Martin, St. Lucie, Glades, Lee, Charlotte, Highlands, Okeechobee, Osceola, Orange, and Polk.

The invasive species information in this report is organized using the terms, geographical references, and structure developed by REStoration COordination and VERification (RECOVER) and the Science Coordination Group (SCG). Information is organized according to these established formats to maintain consistency among the many different agencies and personnel working on Everglades restoration projects. Non-indigenous species are presented by occurrence within the following five geographic divisions, or modules (Figure 1), which are part of the CERP regions, related to the South Florida Restoration and the Kissimmee Basin Restoration programs:

- Northern (East) Estuaries
- Northern (West) Estuaries
- Lake Okeechobee
- Greater Everglades
- Southern Estuaries

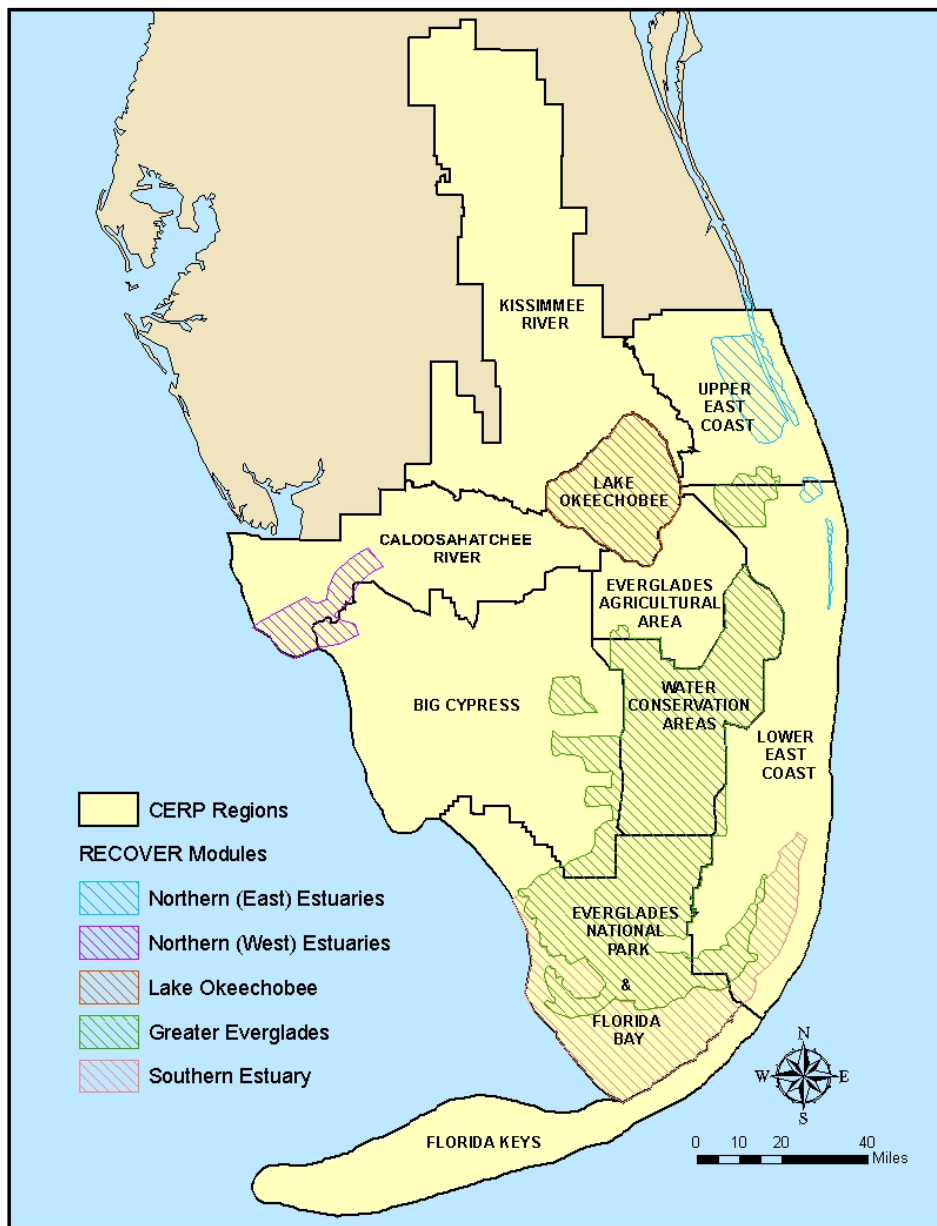


Figure 1: Study Area With RECOVER Modules

3.3 Planning Models Employed

Models were appropriately calibrated, validated, and peer reviewed prior to use. Significant tools used in the planning process included the following:

Insect dispersal model: A mathematical model based on insect life history characteristics was created to evaluate alternative biological control agent release strategies. The model was adapted from Pratt et. al (2003) and predicts dispersal patterns of generalized insect movement as well as impacts on invasive weed species (Appendix C). A two dimensional matrix of ten minute cells was created, with each cell covering 11.5 square miles, and having a binary (infested/not infested) representation of the geographical extents of melaleuca in Florida. These patches of melaleuca formed the boundaries of dispersal for the biological control agent. On this landscape, insects were introduced according to the geographic location and the number released at each actual release point. After release, the populations were allowed to increase and spread according to generalized parameters of population increase, carrying capacity, and dispersal distance. Growth of insect populations was simulated by Ricker's (1954) model, where N is the population size at time interval t . The model assumes that the generalized dispersal model is characteristic of future biological control agents that will be used for this project.

Published in: Environ. Entomol. 32(2): 397-406 (2003)

Geographic Distribution and Dispersal Rate of *Oxyops vitiosa*

(Coleoptera: Curculionidae), a Biological Control Agent of the Invasive Tree *Melaleuca quinquenervia* in South Florida

P. D. PRATT, D. H. SLONE, M. B. RAYAMAJHI, T. K. VAN, AND T. D. CENTER

Plant invasion model: Geographic expansion of exotic plants was forecasted by estimating the current rate of spread and projecting this trend into the future based on mathematical models (i.e. linear, exponential, etc.). Historic data were derived from biannual SFWMD SRF surveys (Systematic Reconnaissance Flights). The SRF surveys were developed to quantify changes in invasive plant densities and distributions within the CERP regions. Maps for each species documenting these surveys were overlain with ten minute grids. Species occurrences and densities within each grid were then compared to previous SRF data, which permitted the construction of a time-series showing increases in numbers of grid cells that are free from the invasive plant, and also documents shifts from dense infestations to moderate or sparse infestations. Predicting spread in this manner, however, assumes that future conditions will mirror the historical conditions under which the data were originally collected, including weed control efforts. Therefore, model predictions are contingent on the assumption that other invasive plants will experience similar range expansions.

This is a widely used approach and can be found in various scientific papers but we also recognize that it is not the most rigorous technique.

Published in:

Volin, John C., Michael S. Lott, Jordan D. Muss and Dianne Owen. 2004. Predicting rapid invasion of the Florida Everglades by Old World Climbing Fern (*Lygodium microphyllum*). *Diversity and Distributions*, (Diversity Distrib.) (2004) 10 , 439–446.

Ferriter, A., B. Doren, C. Goodyear, D. Thayer, J. Burch, L. Toth, M. Bodle, J. Lane, D. Schmitz, P. D. Pratt, S. Snow, and K. Langeland. 2006. The Status of Nonindigenous Species in the South Florida Environment., pp. 9-1-102. In G. Redfield [ed.], 2006 South Florida Environmental Report. South Florida Water Management District, West Palm Beach, FL.

Ferriter, A. P., T. Pernus, K. Langeland, P. D. Pratt, M. Bodle, and C. Silvers. 2006. An assessment and recommendations for control of *Melaleuca quinquenervia*, *Schinus terebinthifolius* and *Casuarina* spp. in the western Bahamas. *Bahamas Journal of Science* (I will look for the page numbers).

The Project Delivery Team

Project Manager	Biologist	Jacksonville District
Planning Technical Lead	Biologist	Jacksonville District
Environmental Analysis	Biologist	Jacksonville District
Economic Analysis	Economist	Jacksonville District
Construction/Operations	Bio-management Spec.	Jacksonville District
Real Estate Evaluation	Real Estate Spec.	Jacksonville District
Legal Evaluation	Attorney	Jacksonville District
Project Manager	Biologist/Planner	SFWMD
Operations and Maintenance	Ecologist	SFWMD
USDA Research Entomologist	PhD Entomologist	USDA
USDA Ecologist	PhD Ecologist	USDA

4. INDEPENDENT TECHNICAL REVIEW PLAN

ITR is performed at key points in the study process to ensure the proper application of appropriate regulations and professional procedures. ITRs are typically performed at two Corps vertical team review points interim to the Draft Report: the Feasibility Scoping Meeting (FSM) and Alternative Formulation Briefing (AFB). Subsequently the Draft report is subjected to ITR and the Final Report in the case of projects requiring an Environmental Impact Statement (EIS). DrChecks document review and comment software will be used to document the ITRs.

Skilled and experienced personnel who have not been associated with the development of the study products perform the ITR. ITR team members may be employees of U.S. Army

Corps of Engineer Districts, other Federal agencies, state or local government agencies, universities, private contractors or other institutions. The key factor is extensive, expert knowledge in their field of expertise, including approval for use and acceptability of employment of planning models discussed in Section 3.3, above. An expert in biomanagement with ERDC is specifically requested as an ITR member for this purpose.

The ITR team should comprise all technical disciplines that were significant in preparation of the report. Technical Disciplines determined to be appropriate for this review include: plan formulation, economics, environmental/NEPA compliance, cost engineering and bio-management.

The relevant National Planning Center of Expertise, in this case for Ecosystem Restoration (ECO-PCX), has ultimate responsibility for accomplishing ITR. The ECO-PCX is requested to form an ITR Team, and to conduct ITR of the Draft and Final Reports.

Also, a Cost Estimating Directory of Expertise (Cost Dx) has been established, at the Corps Walla Walla District (NWW). The completed draft report cost estimate will be reviewed by the Cost Dx. The ECO-PCX is requested, herein, to coordinate cost estimation review with the Cost Dx.

5. EXTERNAL PEER REVIEW PLAN

In order to determine if external peer review is warranted for this particular project, an evaluation was conducted of the risk and magnitude of the proposed project, including consideration of whether or not study conclusions were based on novel methods, present complex challenges for interpretation, contain precedent-setting methods or modes, present conclusions that are likely to change prevailing practices, or are likely to affect policy decisions that have a significant impact, as called for in EC 1105-2-408, Section 4.b.

External Peer Review Requirement Determination

For this study, it has been determined that EPR is not warranted, given the modest magnitude (estimated cost approximately \$6M) and the participation on the project team and ITR team of experts in the bio-management field. In addition to the project team USDA expertise, the ITR Team includes a recognized bio-management expert from the Corps of Engineers Engineering Research and Development Center (ERDC). The expertise built into the Project and ITRs Team is sufficient for the risk, novelty, complexity, controversy, precedence, interagency interest, environmental significance and potential policy effects inherent to a bio-management project and is sufficient to comply with the spirit of EC 1105-2-408, Planning, Peer Review of Decision Documents, dated 31 May 2005.

In the opinion of the ERDC expert, risks associated with the considered actions potential deleterious effects is low. The only significant risk is whether or not considered actions

to eradicate exotic plants would achieve the desired results. The risk to non-target species is addressed through the requirement that biocontrol agents used in this project must be approved and permitted through USDA processes. To address the risk of not achieving desired results, the project team has incorporated an adaptive implementation strategy that will allow them to learn by doing, thereby adjusting the release strategy to optimize the desired effects. If a biological agent proves ineffective, that agent will be pulled from the project. As well, the approval process for release of organisms for biological control is rigorous. See the attached University of Florida document is ENY-828 and the USDA Reviewer’s Manual for the Technical Advisory Group for Biological Control Agents of Weeds Guidelines for Evaluating the Safety of Candidate Biological Control Agents (available upon request)

6. ADDITIONAL REVIEW CONSIDERATIONS

Public and Agency Comment and Dissemination

Public involvement is anticipated throughout the preparation of the Decision Document. Public information meetings are conducted to inform the general public, other federal and state agencies and interested stakeholders of the status of the project and alternatives being considered. At a minimum, public meetings have/will be conducted as part of the National Environment Policy Act (NEPA) compliance process, including: the public review period of the Draft Environmental Assessment. As well, the public will be able to comment on the Final Environmental Assessment and Finding of No Significant Impact.

Results of public reviews are included in all products that are subjected to ITR.

7. CONSOLIDATED SCHEDULE

- ITR of FSM Package (completed)
- ITR of AFB Package (completed June 2007)
- District Review of Draft Report, February 2008
- ITR of Draft Report, March 2008
- Public and Agency review of Integrated Draft Report and EA, April 2008

8. POINTS OF CONTACT

Due to confidentiality law requirements with posting documents on websites for public review, only the Project Manager is listed as the point of contact for any questions concerning this Peer Review Plan and qualifications of members of the PDT team:

Title	Telephone	Email
Project Manager	904-232- 1071	Click here to email the Project Manager