CEPF Grantee Pest Management Plan:
Knersvlakte Conservation Area

I. Grant Summary

1. Grantee organization.
   Western Cape Nature Conservation Board
2. Grant title.
   Consolidation of the Knersvlakte Conservation Area
3. GEM number (*to be completed by CEPF).*
4. Grant amount (US dollars).
   $300,000
5. Proposed dates of grant.
   1 January 2010 – 31 December 2012
6. Countries or territories where pesticides will be applied.
   Western Cape, South Africa
7. Full name, title, telephone numbers, and electronic mail address of Grantee personnel responsible for the pest management plan.
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8. Summary of the project.
   The Knersvlakte region is situated on the West Coast of South Africa and forms part of the Succulent Karoo Biome. Its climate is dominated by warm, dry summers, with limited rainfall during its cool winters. The landscape is dominated by quartz patches which house a high percentage of endemic, dwarfed succulent plant species. This harsh environment, with its limited water resources, has been largely resilient to the increase of alien invasive plants outside of human settlement areas (farmhouses) as well as the region's network of dry riverbeds. These perceived low levels of alien plant infestation as well as the limited human resource capacity , has resulted in the organization's focus remaining fixed on the threat that invasive alien plants posed to the province's other botanical hotspot, Fynbos.

   An initial desktop study attempted to delineate the extent of the problem with no ground-truthing undertaken. A subsequent study in 2011 re-evaluated the rationale for the initial clearing compartments. In line with the national driven project of Working for Water (WfW), clearing compartments were classified as Nbals (Natural Biological Alien), which means that all clearing operations undertaken within these units can be fed into the national database. The 2012/2013 financial year will used predominantly to ground-truth the infestation densities and to do initial clearing to obtain norms to be used at a local scale.

   Additional personnel will start 1 April 2012 which will increase the total number of people, employed through the Department of Public Works' Expanded Public Works Programme (EPWP) to 22. This will provide a significant financial relief to surround communities such as Nuwerus, where the unemployment level has reached 85%. The initial 16 workers have undergone a number of training courses which ensures that the project is compliant with the minimum standards to undertake the operation. All Personal Protective Equipment (PPE) will be provided.

   Clearing of the targeted invasive aliens will be predominantly via mechanical and chemical methods. Density levels are not high enough to warrant the use of biological control for *Prosopis sp.* Designated CapeNature staff will monitor and evaluate clearing methods and effectiveness. This will include evaluating the mortality success rate of chemical treatments, rate of re-growth, mortality of non-targeted species and planned vs actual productivity rates of teams.

9. Date of preparation of the pest management plan.
   March 2012

II. Pest Management Approach: In total, responses to the questions below will describe the applicant's understanding of the problem, experience with pest management issues, and proposed actions during the project. Specifically, what will the grantee do and how will the grantee do it? The information presented should include methods of application (e.g. by hand, via aerial spraying).

10. Current and anticipated pest problems relevant to the project.
    A discernible increase in the densities of the following species across the Knersvlakte properties that have notable river systems, have occurred:
    - *Prosopis* spp. - Mesquite
    - *Ricinus communis* – Castor oil plant
    - *Argemone mexicana* – Mexican poppy
    - *Nicotiana glauca* – Tobacco plant

    As been mentioned previously, the relative densities for the larger woody species, in particular *Prosopis* spp. have been estimated using satellite imagery. Groundtruthing will be in the form of fieldrangers traversing Nbals and establishing the relative density per Nbal per species.

11. Current and proposed pest management practices.
    It should be noted that no clearing operations are currently underway in the project.

    Teams will be divided into units that will focus on the riverbeds (where higher densities usually occur) and the remaining areas. A top down approach will be followed, meaning that the Nbals will be worked from North to South.

    Cut stump treatment will be applied to all woody species. This can be administered all year but will be confined to outside the period of June to October. In the event of any residual spray landing up in the soil, it will ensure that the herbicide's active ingredient (in the case of the registered herbicide Confront, this is approximately 25 days in soil) has had sufficient time to break down.

    Woody specimens with a large biomass will be removed from the riverbed to prevent damage of infrastructure, e.g. fences, lower down during flooding.

    Where possible, herbaceous species, such as *Argemone mexicana*, will be hand pulled. Although this would be seen as the most labour intensive and time consuming method, it is the most effective. Care will be taken to collect seedpods to prevent reseeding from taking place.

12. Relevant integrated pest management experience within the project area, country or region.
    The project manager has been involved with plant invasive alien clearing since 2006 under the auspices of WfW. This included projects within the Southern and Eastern Cape. He has undergone the relevant accredited chainsaw as well as herbicide training.

13. Assessment of proposed or current pest management approach and recommendations for adjustment where necessary.
    The final clearing plan will be presented to CapeNature's West Coast Quarterly Ecological Meeting (QEM). Recommendations will be incorporated and implemented accordingly.

III. Pesticide Selection and Use: In total, responses to the questions below will provide a comprehensive understanding of the pesticide that will be selected, why it was selected, and what efforts were made to assess risk. Present information on the potential risk that the selected pesticide will have on non-target species.

14. Description of present, proposed and/or envisaged pesticide use and assessment of whether such use is in line with best management practices.
    The herbicide to be used has been registered for the species. The clearing methods to be used are in line with that of WfW.

15. Indication of type and quantity of pesticides envisaged to be financed by the project (in volume and dollar value) and/or assessment of increase in pesticide use resulting from the project.

    No cost analysis has been finalised yet as the density evaluation of the species still need to be completed.

16. Chemical, trade, and common name of pesticide to be used.

    Confront is a systemic water soluble herbicide. It is used for both woody as well as weedy plant species. Its two active ingredients are Triclopyr and Clodyrid, with half lives of two and 25 days in soil, respectively.

17. Form in which pesticide will be used (e.g., pellet, spray).
    Once diluted, the herbicide will be decanted into spraying bottles to be used only by certified herbicide applicators.

18. Specific geographic description of where the pesticide will be applied: name of province, district, municipality, land owners, or map coordinates (if available); and the total area (hectares) to which the pesticide will be applied.

    See Annexure B for a map indicating the area of work.

19. Assessment of environmental, occupational and public health risks associated with the transport, storage, handling and use of the proposed products under local circumstances, and the disposal of empty containers.
    Annexure A is Working for Water's "*Policy on the use of herbicides for the control of alien vegetation*". **Section 8** deals with **storage, handling and transportation**. The policy will form part of the training schedule for all relevant staff.

20. Description of plans and results for tracking of damage to and/or deaths of non-target species prior to pesticide application and subsequent to pesticide application.

    The clearing methods excludes foliar application and broadcast spraying in any form and would thus minimize any damage to non target species. The blue dye to be used with the herbicide, however, will ensure that any treatment administered can be visually assessed.

21. Pre-requisites and/or measures required to reduce specific risks associated with envisaged pesticide use under the project (e.g., protective gear, training, upgrading of storage facilities, etc.).
    Annexure A is Working for Water's "*Policy on the use of herbicides for the control of alien vegetation*". **Section 5** deals with **training**. The policy will form part of the training schedule for all relevant staff.

22. Basis of selection of pesticides authorized for procurement under the project, taking into consideration WHO and World Bank standards, the above hazards and risks, and availability of newer and less hazardous products and techniques (e.g. bio-pesticides, traps).

    Only registered herbicides will be considered.

    Bio-control has been considered (see Annexure C) for *Prosopis* spp. However, due to the relatively low densities occurring in the area, it is considered to be less effective. Additionally, with animals like springbuck grazing on the seedpods (aiding in its distribution) the seed feeding beetle would be unlikely to neutralise all

seeds before potential distribution. Fencing invested areas off (to aid the beetle) would be financially impractical.

23. Name and address of source of selected pesticides.
    Eco-guard
    Physical Address
    23 Kaapland street
    Paarl

    Postal Address
    PO. Box 3167
    Paarl
    7620

    +27 21 862 8457

24. Name and address of vendor of selected pesticides.
    Eco-guard
    Physical Address
    23 Kaapland street
    Paarl

    Postal Address
    PO. Box 3167
    Paarl
    7620

    +27 21 862 8457

25. Name and address of facility where pesticides will be stored.

    The herbicide will be stored at the Graatjiesgat farmhouse, which is centrally placed within the Knersvlakte Conservation Area.

IV. Policy, Regulatory Framework, and Institutional Capacity: In total, responses to the questions below will describe he institutional and legal framework under which the pesticide will be applied, with reference to the documentation and standards required under local and national law and international good practice. Where the particular pesticide is not regulated at the target site, the proponent must identify similar pesticides and the applicable regulation, international laws in neighboring countries that could apply, and international good practice. The proponent must also explain why this particular pesticide is necessary even in the absence of national laws.

26. Policies on plant/animal protection, integrated pest management, and humane treatment of animals.
    Apart from WfWs Herbicide Policy, Annexure A, see also 28 below

27. Description and assessment of the country's regulatory framework and institutional capacity for control of the distribution and use of pesticides.

    Through South Africa's **Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947** (**Act No. 36 of 1947**), a Pesticide Management Policy was published in 2010. The aims of the policy are to improve the then outdated legislative framework; provide better protection for individuals from health and environmental risks due to exposure to pesticides; increase access to information and to integrate international agreements.

Additionally, a National Toxicity Monitoring Programme was launched in 2008 to assess the toxicity levels of certain pollutants entering surface water.

In accordance with WfWs Herbicide Policy, Annexure A, handling of herbicides will be limited to individuals with the relevant training.

28. Description and assessment of national capacity to develop and implement ecologically-based alien and invasive species control.

Below is summary of the legal framework for the control of invading alien plants as provided by WfW.

" South Africa is a signatory to the Convention of Biodiversity (1992) which states that member countries are 'obliged to prevent the introduction of, control or eradicate those alien species, which threaten ecosystems, habitats or species'. The operations of WfW are mainly guided by the Conservation of Agricultural Resources Act 43 of 1983 (CARA), the National Environmental Management Act 107 of 1998 (NEMA), National Water Act of 1998, the Forestry Act 84 of 1998 and the National Veld and Forest Fire Act 101 of 1989. The regulations promulgated in terms of CARA classify invading alien plants or weeds in three categories. Category 1 plants must be removed with immediate effect, Category 2 plants are usually of commercial value and can only be grown with special permission and Category 3 plants are plants that may no longer be planted."

29. Proposed project activities to train personnel and strengthen capacity (e.g., type of training, number of people to be trained).

CapeNature has provided the funding for essential and non-essential operational training for the 16 beneficiaries that started on 1 November 2011.

Table 1 is a summary of the training courses that personnel have undergone

Course	Accreditation	Start date	End date	Duration	Personnel Attended	Service provider
Chainsaw Operator	Accredited	2011-11-07	2011-11-18	10	2	New Skills Africa Development
First Aid Level 1	Accredited	2011-11-14	2011-11-15	2	14	Dynamikos Training Network
Herbicide Applicator	Accredited	2011-11-28	2011-11-30	3	8	Invader Plant Specialists
Health & Safety Level 1	Accredited	2011-12-05	2011-12-06	2	16	Academy for Construction Skills

30. Confirmation that the appropriate authorities were approached (e.g., names and titles of authorities, dates) and that the appropriate licenses and permissions were obtained by the project.
The draft project plan was presented at CapeNature's West Coast QEM on 17 November 2011. Although funding was not available at the time, the QEM approved the clearing plan in principle. The final plan will be presented at the May 2012 QEM.

V. Consultation: In total, responses to the questions below will describe consultations that the grantee has had with experts to optimize the potential for success, and with stakeholders, particularly local communities who are potentially affected by proximity of pesticides to themselves, their livestock, their agricultural products, their land areas, or their water sources.

31. Plans for, dates, and results of expert consultations, if necessary.
Not Applicable

32. Plans for, dates, and results of consultations with local communities.
    Not Applicable

VI. Monitoring and Evaluation: In total, responses to the questions below will describe actions the proponent will take to monitor and evaluate the purchase, storage, application, and effects of the pesticide in the target area.

33. Description of activities related to pest management that require monitoring during implementation.
    These considerations are still in the process of being finalised

34. Monitoring and supervision plan, implementation responsibilities, required expertise, and cost.
    These considerations are still in the process of being finalised