

ONRUS RIVER ESTUARY FORUM

REED REMOVAL: METHOD STATEMENT

Due to changes in upstream land use and a reduction in freshwater inflows in the Onrus River estuary, a monoculture of reed species has developed. This reduced the overall biodiversity of the estuary, blocked access and views and discouraged the use of the estuary for recreational purposes. To address this issue the Onrus River Estuary Forum (OREF) developed a Maintenance Management Plan that was submitted to, and adopted by, the Western Cape Department of Environmental Affairs and Development Planning. While the common reed (*Phragmites australis*) is the dominant species in the Onrus estuary, the plan pertains equally to other species, such as *Typha capensis*, that have to potential to become equally dominant and problematic.

Reed clearing activities will be managed by the OREF under agreement with the Overstrand Municipality (OSM).

This document applies to a party (e.g., individual property owner) wishing to undertake reed clearing activities in front of their property. Such a person must adhere to the control measures as provided in the MMP (summarised in this method statement) and must inform OREF's designated member, currently Mr Hennie Greeff (hennie.greeff@gmail.com), of the proposed activities. If a contractor is to be employed the specifications issued should be in line with Chapter 5 of the MMP.

Opportunities of using the cut material for fodder and other beneficial uses are being explored, which may assist with the funding of the reed removal programme in future.

GENERAL

1. Areas to be cleared will be in accordance with a plan submitted to OLM.
2. Stockpiling must be done in dedicated areas where the reeds can be left for drying before removal (up to 5 working days).
3. Paths for access to reeds and removal to stockpiling areas to be demarcated on the plan and the ground (see Annexure B).
4. No heavy machinery to be allowed (see Annexure A for recommended equipment)
5. Removed material may not be left in the river as the decomposing thereof may result in eutrophication of the system.
6. Removed material may not be burnt on site.

INITIAL CUT AND CLEARING

1. To accommodate the breeding season of the birds, the initial reed clearing must take place during May to August. This fortunately coincides with the period when the water in the estuary is likely to be at its lowest level and the areas to be cleared are at their most accessible.
2. The cut treatment can be followed by the application of an authorised herbicide on regrowth. (See HERBICIDE TREATMENT below)
3. Once the reeds have been cut, the reed rhizomes can be removed. (See REMOVAL OF RHIZOMES below)

REMOVAL OF RHIZOMES

1. Rhizome removal must be undertaken from the river embankment (dry zone) towards the moist zone.

2. Cut the rhizome 'mat' using a sickle, hedge shears or an aquatic mower to break up the biomass into manageable sizes to remove from site.
3. Remove all cut material from the cut site with the use of a shovel and wheelbarrow.
4. Removed rhizomes can be stockpiled in the same designated area as the cut reeds to allow for the material to dry out and be compacted for eventual transport.
5. Sediment may be removed up to a depth of 30 cm from cut site. (See SEDIMENT REMOVAL below.)
6. The removed materials may not be left in the river as the decomposing thereof may result in eutrophication of the system.

FOLLOW UP TREATMENT

1. The concerns related to bird breeding applies to the initial cutting clearing. Thereafter more frequent and shorter time intervals between follow-up cutting of new growth is recommended for effective control.
2. Follow up treatments are specifically recommended in the late summer season to maximise nutrient depletion by removal of above-ground biomass prior to the translocation of nutrients from shoots to rhizomes.
3. The cut treatment can be followed by the application of an authorised herbicide. (See HERBICIDE TREATMENT below)
4. The removed materials may not be left in the river as the decomposing thereof may result in eutrophication of the system.

HERBICIDE TREATMENT

1. Two herbicides, Glyphosate and Triclopyr may be used. These are known to control *P. australis* effectively - when used correctly.
2. Herbicides are available in separate formulas for application either on aquatic or terrestrial sites.
3. Application of herbicide on aquatic sites may only take place in the period March, April and May, so as to avoid the amphibian breeding season.
4. Two types of applications are noted to be the most effective for the treatment of *P. australis*: Foliar Treatment and Cut stem treatment:
 - a. Foliar treatment:
 - Spray should be applied to wet the leaves and, when present, the flower plumes of the target plants.
 - Excessive application, such that the chemicals are dripping off the plants, should be avoided due to injuries to desirable indigenous plants. This application can be undertaken in areas where *P. australis* is dense, with limited other species (NRCS, 2013).
 - Foliar spray can be applied to regrowth that is up to the height of 1m.
 - Herbicide must be applied using knapsacks/bottles with solid cone nozzle and must be mixed with a suitable dye to prevent over- or under spraying of treated areas
 - b. Cut stem treatment:
 - This method should be used in isolated or scattered stands of *P. australis*, where impacts to desirable, native plant species must be avoided.

- Cut plants to waist height and add one drop of herbicide to hollow stems with a squirt bottle or syringe.

SEDIMENT REMOVAL

1. Avoid sediment plumes from occurring in the water column.
2. Minimise the number of people operating within the cut site and the number of trips to and from the cut site.
3. Minimise collateral suspension by using selected entry and exit points.

EQUIPMENT

The use of the following equipment is suggested:

Rotary brush cutter, mechanical reed cutter or chainsaws, knapsack/bottle spray, syringe, squirt bottles. Canoes or a small motorised boat, preferably only motorised boats with a four stroke motor (if authorised by the regulating authority to enter the estuary) may be utilised.

If these hand tools require fuel for generation, refuelling must be undertaken outside of the delineated boundary of the river (i.e. in the contractor laydown area). All fuel must be stored in the contractor's laydown area to prevent any contamination of soil.

PATHS & VEHICLES

All walkways/access paths planned into the river to access the cut sites must be marked with a pole and flag (which can be easily removed), and only these paths may be used as part of the rehabilitation phase activities. No indiscriminate movement of personnel may be permitted.

No vehicles may be moved indiscriminately in the Onrus River estuary. During the rehabilitation phase, the footprint areas of the vehicles and trampling in the river must be kept to a minimum. All vehicles must use a single designated track and turn-around areas should be located outside of the Onrus River estuary. Due to the relative accessibility of the site, no unnecessary crossing of the Onrus River estuary or beach may be permitted.

BIRD BREEDING SCHEDULE

A bird breeding schedule listing the local, reed nesting bird species in the Onrus River estuary is provided. Cognisance of bird breeding times must be taken when scheduling reed clearing activities.

Please note that this is an updated list from the earlier one provided by OREF which was based on the general breeding patterns of birds in South Africa nationally. Here it is recognised that winter in the Overberg stretched well through August, as opposed to the average situation for the country.

OREF: BIRD BREEDING SCHEDULE															
ONRUS RIVER ESTUARY: WATER BIRDS - TAKEN FROM OLM EMP SRA															
ALL BREEDING WATER BIRDS THAT NEST IN REEDS															
None of these birds appear on the Endangered Species List of BirdLife Africa															
BEST MONTHS FOR CUTTING see note 4															
SPECIES - Common Name	BREEDING STATUS	BREEDING SEASON	REED NESTING	J	F	M	A	M	J	J	A	S	O	N	D
1 Bishop, Southern Red	RESIDENT	JULY-DEC	YES	J	F	M	A	M	J	J	A	S	O	N	D
2 Bishop, Yellow or Cape	RESIDENT	AUG-NOV	YES	J	F	M	A	M	J	J	A	S	O	N	D
3 Bittern, Little	RESIDENT	JUNE-FEB	YES	J	F	M	A	M	J	J	A	S	O	N	D
4 Coot, Red Knobbed	RESIDENT	JAN-DEC	YES	J	F	M	A	M	J	J	A	S	O	N	D
5 Cormorant, Reed	RESIDENT	JULY-APRIL	YES	J	F	M	A	M	J	J	A	S	O	N	D
6 Crane, Black	RESIDENT	OCT-MARCH	YES	J	F	M	A	M	J	J	A	S	O	N	D
7 Darter, African	RESIDENT	SEPT-JAN	YES	J	F	M	A	M	J	J	A	S	O	N	D
8 Duck, Maccoa	RESIDENT	JAN-DEC	YES	J	F	M	A	M	J	J	A	S	O	N	D
9 Duck, White-faced	RESIDENT	JAN-DEC	YES	J	F	M	A	M	J	J	A	S	O	N	D
10 Duck, Whitebacked	RESIDENT	JAN-DEC	YES	J	F	M	A	M	J	J	A	S	O	N	D
11 Duck, Yellow-billed	RESIDENT	JAN-DEC	YES	J	F	M	A	M	J	J	A	S	O	N	D
12 Egret, Cattle	RESIDENT	AUG-FEB	YES	J	F	M	A	M	J	J	A	S	O	N	D
13 Egret, Little	RESIDENT	AUG-JAN	YES	J	F	M	A	M	J	J	A	S	O	N	D
14 Egret, Yellow-billed	RESIDENT	SEPT-FEB	YES	J	F	M	A	M	J	J	A	S	O	N	D
15 Goose, Spur-winged	RESIDENT	AUG-OCT	YES	J	F	M	A	M	J	J	A	S	O	N	D
16 Grebe, Little	RESIDENT	AUG-FEB	YES	J	F	M	A	M	J	J	A	S	O	N	D
17 Harrier, African Marsh	RESIDENT	JUNE-NOV	YES	J	F	M	A	M	J	J	A	S	O	N	D
18 Heron, Purple	RESIDENT	OCT-MARCH	YES	J	F	M	A	M	J	J	A	S	O	N	D
19 Moorhen	RESIDENT	JAN-DEC	YES	J	F	M	A	M	J	J	A	S	O	N	D
20 Night-Heron, Black-crowned	RESIDENT	AUG-MARCH	YES	J	F	M	A	M	J	J	A	S	O	N	D
21 Rail, African	RESIDENT	JAN-DEC	YES	J	F	M	A	M	J	J	A	S	O	N	D
22 Swallow, Barn	MIGRANT(NON-Breed)	SEPT-APRIL	ROOSTS	J	F	M	A	M	J	J	A	S	O	N	D
23 Swampphen, African Purple	RESIDENT	SEPT-JAN	YES	J	F	M	A	M	J	J	A	S	O	N	D
24 Teal, Cape	RESIDENT	JAN-OCT	YES	J	F	M	A	M	J	J	A	S	O	N	D
25 Teal, Red-billed	RESIDENT	JUNE-NOV	YES	J	F	M	A	M	J	J	A	S	O	N	D
26 Warbler, African reed (marsh)	MIGRANT (Breeding)	SEPT-NOV	YES	J	F	M	A	M	J	J	A	S	O	N	D
27 Warbler, Cape Reed	RESIDENT	SEPT-DEC	YES	J	F	M	A	M	J	J	A	S	O	N	D
28 Warbler, African sedge	RESIDENT	SEPT-NOV	YES	J	F	M	A	M	J	J	A	S	O	N	D
28				20	17	13	10	8	11	13	19	26	28	26	22
NOTE															
1. Malachite Kingfisher breeds in holes in bank on east side of estuary, breeds August - February															
2. Water Thicknees (Dikkops) breed on east bank of estuary Sept- January															
3. Besides Barn Swallows other birds roost in reeds e.g. Cape Weavers & Common Starling (invasive alien)															
4. "I would note that birds are very resilient creatures and will leave during periods of disturbance, but return and settle back in once conditions are back to norm; normal. In the case of this estuary there are no species of red data concern and the good you do will greatly outway any temporary disturbance"															
"I think you are on the right track with your plans and the period May to August is definitely the time to take out the reeds with minimum impact on the local bird-life".															
Mike Ford, former chairman, Hermanus Bird Club. Also confirmed in principle by Dr Rob Little, Fitzpatrick Institute of Ornithology, UCT.															
(Note: Breeding records used are national while in Overberg, August is coldest month of year unlike most parts of the country (July)															

ONRUS RIVER ESTUARY FORUM

Framework for scheduling reed removal management activities (shaded months) (See Note 1)

Activity	Comment	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cutting of reeds:													
<i>Initial cut</i>	To avoid bird breeding season (See Annexure C)												
<i>Follow up cuts</i>													
Spraying of herbicide – after initial cut:													
<i>Terrestrial application</i>	To avoid amphibian breeding season (See Note 2)												
<i>Aquatic application</i>													
Removal of rhizomes - after initial cut (See Note 3)													

Note 1: Based on the MMP and to be read in conjunction with the Reed Removal Method Statement

Note 2: Based on earlier advice from local amphibian expert Sheraine van Wyk of Whale Coast Conservation and confirmed with Vincent Carruthers, co-author of “South African Frogs - A Complete Guide”, and Professor Alan Channing, co-author of “Field Guide to the Frogs & other Amphibians of Africa”)

Note 3: OREF suspended this activity pending more information about the character and extent of peat in the estuary and the impact that the removal of rhizomes may have on peat deposits.