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Parks, people, planet: inspiring solutions

Cut rootstock method for Lantana eradication

Corbett Tiger Reserve, INDIA.

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Amongst world's top 10 worst weeds

❖Lantana genus from Verbenaceae has 270 species, Americas as center of diversity.

❖In India there are 5 species. All are exotics. Four species - *L. indica, L. veronicifolia, L. trifolia* and *L. aravalliana* are non-invasive alien species.

❖5th species *L. camara* most aggressive invasive among all the Lantana species. Native to South America threat to native biodiversity in 60 countries.

❖ *L. camara* is a species complex composed of different polyploids (from 2x-11x) of hybrid origin. It includes some 40 species which can not be further delimited because of continuous variation in morphological traits.

Lantana has invaded entire tropical and subtropical parts of India, up to 2000 m in the Himalayas.

Existing methods not effective

- Lantana has evolved strategies that overcome all control methods. Physical uprooting of plants manually and mechanically disturb the soil which results in exposure of buried seeds to sunlight leading to explosion of seedlings.

- Branches that come in contact with the soil when uprooted plants placed on the ground may also develop into plants by forming adventitious roots at the nodes.

- The chopping of clumps at the base and burning of clumps activate the subterranean meristem which results in coppicing. Further, chopped stems /branches when comes in contact with the soil also develop into plantlets.

- No herbicide is found effective. Further, chemical treatment is costly and cannot be used in forest ecosystems.

- No effective biological control for the control of Lantana. Even if found, can not be used in forest ecosystems.

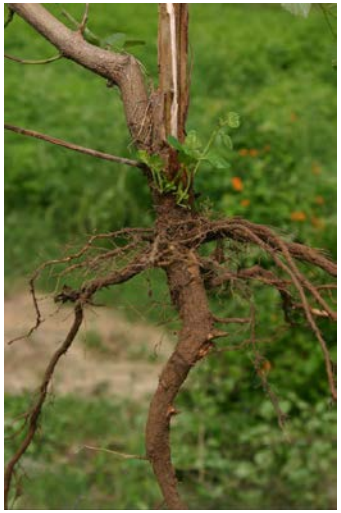
Steps in cut-root stock method

Cutting the tap root below the coppicing zone and keeping uprooted plants upside down.

❖Insert a wooden pole of 1.5-2.5 m long and 5-6 cm diameter below the branches of thick Lantana clumps from one side.

❖Two persons holding the wooden pole at either end should press the Lantana clump on one side.

❖Third person should reach the base of Lantana clump. He should stand near centre of Lantana clump with his back facing the clump and holding the handle of digger.

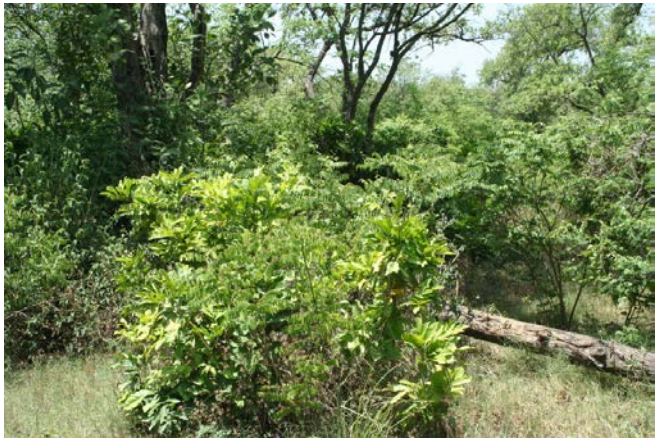


- The branches of Lantana clumps should not be slashed/chopped/cut.
- Cut the main tap root below the coppicing zone by hitting the rootstock 3-4 times at a depth of 3-6 cm & separate the Lantana clump from the main tap root.
- Keep the removed Lantana clumps upside down. Pool a few clumps together.
- Dry the Lantana clumps and burn on site, allow to decompose or use for other purpose.

The Cut rootstock method does not

- disturb the soil around the clumps,
- allow sprouting of branches from uprooted clumps
- permit coppicing from subterranean meristem.

Planning to control Lantana



❖If hilly with slopes, removal of Lantana should start from hill tops.. If the site is a plain area, start from the microwatershed and then proceed to the riverbed.

❖Identify perching trees & start removal of Lantana beneath the perching trees followed by drainage channels and riverbeds.

❖ After removal, the site should be restored to grassland by planting root slips of native grasses and or broadcast of cowdung-soil (2:1) pellets containing seeds of native grasses . If to be restored to a forest, early colonizers of woody species followed by late colonizers and then underwood species.

❖ Surveillance of Lantana saplings particularly beneath the perching trees to be carried periodically for at least 3 years.

Simple, innovative & cost effective method

- One simple cut below coppicing meristematic zone with least human effort and minimum disturbance to the soil.
- Orientation of removed plant upside down to prevent regeneration of shoot suckers.
- Identification of perching trees and removal of Lantana saplings.
- Restoration of weed free landscape with palatable native grass species, bamboo and native legumes.

Benefits Herbivores

- Nearly 10 sq kms covered in Corbett Tiger Reserve
- Increased presence of herbivores, reappearance of hog deer and periodic sightings of tiger.

Being Applied Widely

- Applied in other areas of Uttarakhand, Himachal Pradesh, Gujrat, Madhya Pradesh, Haryana and Karnataka. Also Nepal and Bhutan.

Habitat restoration, biological productivity

- Simplicity of technique.
- Cost effectiveness.
- Easy detection of subterranean coppicing system - after turning it upside down becomes topmost, easily ascertained.

Enabling factors

- Availability of mature grasses for planting after removal of Lantana.
- Capacity Building through training workshop and manuals essential to guide the field staff.
- Effective supervision.