

REPORT ON IMPROVEMENT OF ALPINE MEADOWS AND ESTABLISHING WATERHOLES IN THE MANITING/JARIBUSA REGION OF THE PARK.

1. Background

In recent times, the nomadic yak herding communities have been declining, leading to a change in the landscape of the alpine meadows they once grazed upon. These meadows, now invaded by Juniper bushes and other shrubs like *Rosa sericea* and *Berberis asiatica*, and no longer sustain the grass necessary for grazing. This encroachment of shrubs, particularly in areas like Wangjila, Maniting, Jariphusa, Geloji, and Yakchu, not only concerns the remaining yak herders but also disrupts the habitat for wild herbivores that are crucial prey for the tiger population.

To combat this, the park management, supported by Bhutan for Life in 2020, initiated interventions to preserve the grasslands focusing on improving alpine meadows by de-branching spreading Juniper bushes, starting with a pilot program in Wangjila. Also established permanent sample plots to assess the impact of Juniper bushes on natural grasslands, conducted a pilot project of de-branching juniper growths to understand the results, and recommended possible interventions to address the issue of disappearing grasslands.

As part of the continued intervention work during the Financial Year 2023-2024, efforts were made to improve Alpine Meadows and establish waterholes through water source fencing. This included creating drinking water ponds to ensure a continued safe drinking water supply for herders, yaks, cattle, and wild animals in the Maniting/Jaribusa regions of the park. The main activities included:

- De-branching/pruning and thinning of juniper bushes in and around Maniting pasture/grassland to open up grassland for wild ungulates and domestic yaks.
- Assembling/piling up debris and conducting controlled burning to accelerate the growth of palatable native grasses.
- Establishing water holes by fencing water sources and digging ponds to provide continuous drinking water for herders, yaks, cattle, and wild animals.
- Collecting/recording vegetation data (trees, shrubs, and grasses) at the work site.

2. Work execution

Five technical staff, along with two power chain operators and five local laborers, undertook the task of improving the alpine grassland and establishing water holes. The activities include; de-branching overgrown Juniper trees, thinning their saplings and bushy undergrowth, and clearing and cutting off the understory growth of thorny *Rosa sericea* and *Berberis asiatica*, as well as other bushes. These actions aimed to create suitable space for the growth of palatable grasses, thereby maintaining and supporting the sustainability of the profound alpine grassland for a large population of herbivores such as musk deer, sambar deer, blue sheep, gaur, barking deer, serow, and ghoral, while also encouraging and supporting grazing grounds for the

dwindling yak herding communities. Also piled up debris, including debris from de-branching, thinning, and bushes, in appropriate locations for drying and controlled burning later on.

To ensure a constant and secure supply of drinking water for herders, yaks, cattle, and wildlife sustainably, efforts were made to protect and conserve waterholes. This involved enclosing the water source with fencing to maintain a continuous provision of safe drinking water for herders, while also establishing waterholes by digging two ponds positioned just 10 meters below the primary drinking water source for yaks, cattle, and wild animals.

Vegetation data, including information on trees, shrubs, regeneration, and grasses were recorded in detail after proper identification of grasses and plant species using specified formats.

3. Achievements/Outcome

Approximately ten hectares of alpine grassland, which were previously used for grazing but later encroached by Juniper and other bushy undergrowth, were opened up to induce the growth of palatable grass species for yaks and wild ungulates.

Waterholes were established by fencing the water source with sawn timber, measuring an area of 7.20m x 8.0m. Additionally, two drinking ponds (for yaks, cattle and wild animals) were created just 10 meters below the drinking water source, measuring 2.0m x 2.0m x 0.70m and 3.20m x 2.0m x 0.70m, respectively.

Detailed information on vegetation, regeneration, and grasses was recorded using specified formats. This data will be utilized to determine the impacts of Juniper bushes on natural grassland, assess de-branching interventions, and recommend possible solutions to address the issue of dwindling alpine meadows.

4. Recommendation/Suggestion

Field observation reveals that the vast prime alpine grassland is on the verge of intrusion made by *Juniper* growth coupled with *Rosa* and *Berberis* species, hence more areas need to be brought under alpine improvement interventions for a persistent thriving population of yaks and herbivores for all times to come.

A. Establishing water holes by fencing water sources and creating ponds



Photo: Before work execution



Photo: Work execution



Photo: After work completion

B. De-branching, thinning and clearing of Juniper and other bushes



Photo: Before work execution



Photo: Work execution



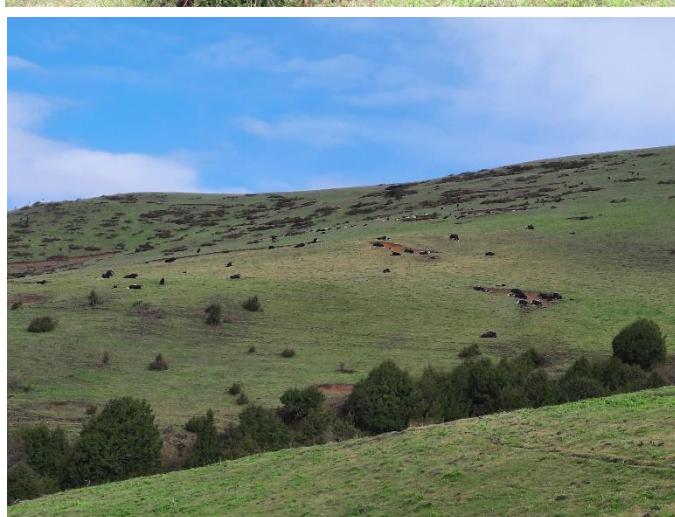


Photo: After work completion