

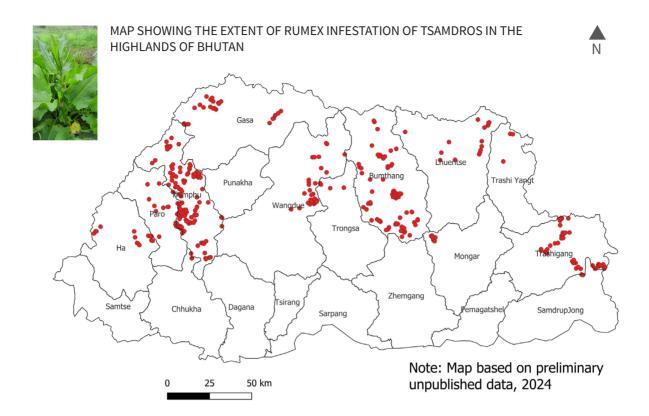
Rumex, the weed spreading rapidly across the tsamdros of Bhutan

Sonam Lhaki Dema, Karma Chorten Dendup, and Gyem Tenzin

The high-altitude grazing lands of Bhutan, essential for yak herding, are facing an increasing threat from weeds such as Rumex species, commonly referred to as dock (Eng.), halhaley (Nep.), sheylempo (Sha.) and shomda (Dzongkha). Rumex has proliferated across both summer and winter grazing pastures, especially in areas where yaks are confined for milking and feeding, as this creates fertile soil conditions due to dung, urine, and soil trampling.

RAPID SPREAD OF AN INVASIVE

The plant is now found at altitudes ranging from 2500 to 4,300 meters above mean sea level (masl), encroaching on valuable grazing lands. For instance, a quick survey of 186 tsamdros (rangeland parcels) showed that 49 (26%) are heavily invaded by Rumex, while 127 (68%) are partially invaded but showing rapid spread every season. The spread of Rumex reduces available space for growth of palatable grasses that are critical as fodder for yaks and horses, as well as for wild herbivores.



This poses a serious challenge to the livelihoods of highland communities, whose animals rely on these lands.

MANAGEMENT AND USE

Gyem Tenzin, a local leader, explained that long ago, some villagers used a locally made ploughing blade, crafted from Symplocos trees (Dzongkha: *pangtse shing*), to break the roots and control the spread of *Rumex*. When this tool was used, the roots would decay, helping to limit its spread. However, this method is labour-intensive and not always effective or practical over large areas.

The other approach that has been adopted in many places is to put invasive biomass to use. We have seen this with the case of *Lantana camara* in India, which is being used to make furniture, *Eichhornia crassipes* in Southeast Asia and Africa, which is exploited for its fibre, and many other invasives that are used to make biochar, building material, and paper.

Historically, *Rumex* roots were harvested and used as a natural dye, a practice that has largely disappeared due to the availability of cheaper



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alternatives in the market and a shortage of manpower. According to Pema Wangchuk, a local highlander, this traditional knowledge has been lost over time. In the past, the roots were used to treat jaundice, and both the roots and leaves were boiled to create baths for curing joint pains. Rumex is very difficult to uproot; even a small remaining fragment of its root can reestablish and spread quickly, making it hard to control. The loss of traditional knowledge, combined with the plant's invasive nature, underscores the importance of both reviving local practices and finding new ways to address the issue.

While *Rumex* has recognized medicinal value in other parts of the world, its potential benefits are not widely known in Bhutan. Currently, only one manufacturing unit produces Rumex juice, but public awareness and market demand are low. Unless we find uses on a much larger scale, this is unlikely to make a dent on the invasive.

RANGELAND RESTORATION TRIALS

We have been working with experts from the International Centre for Integrated Mountain Development (ICIMOD) and other national agencies like Department of Livestock to trial various treatments in Rumex invaded sites. These include physical removal, controlled burning, and reseeding of plots with grasses.

However, the scale of the problem is daunting. The map above, based on reports from various districts, shows the extent of the problem. This problem must be tackled at scale and with speed.

The early results from our trials are promising and we hope that with the sustained effort and collaboration among agencies, we can arrest the spread of this problematic invasive that is rapidly taking over our tsamdros. The future of yak pastoralism and the wildlife of our highlands depends on it. Recognising the negative impacts of this invasive and raising public awareness is a good first step.



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PHOTOS

Page 1 & 4: Jitendra bajracharya, ICIMOD