



SHORT COMMUNICATION: RAJASTHAN'S THAR DESERT ORANS AS A COMMUNITY CONSERVATION STRATEGY UNDER THE POST-2020 GLOBAL BIODIVERSITY FRAMEWORK

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ABSTRACT

The Convention on Biological Diversity aims to bring 30 per cent of the Earth's land and sea under protection, including biodiversity-rich areas outside recognised protected areas. In India, many sacred groves could potentially be inscribed as such "Other Effective Area-based Conservation Measures". This study explores the potential for Rajasthan's sacred groves or Orans to contribute to this target. Although Rajasthan state has many Orans, their rich cultural heritage and traditional practices have been little documented. Orans are patches of community forests of religious and spiritual significance, often associated with a temple or a legend. By conservative estimates, Orans cover over 600,000 ha. of land in Rajasthan state. They serve as a reserve for grazing, forest products, water infiltration and as a coping mechanism for climate change in arid regions. This study is the first to combine grass-roots level data collection into a database enabling the mapping and analysis of Orans in Bikaner district in Rajasthan's Thar desert. It generates new insights into the distribution, differences and similarities among Orans and associated traditional values and practices vs. the challenges and threats they face due to a lack of legal protection. How might including Orans under India's efforts for meeting the 30 per cent target under the Global Biodiversity Framework benefit their conservation?

Key words: forest, OECM, sacred grove,

HOW DEITIES HELP CONSERVE BIODIVERSITY IN RAJASTHAN'S ORANS

Orans have special religious, spiritual and socio-cultural importance mainly because they are recognised as the abodes of local deities or saints by rural Indigenous and traditional people. The word 'Oran' is a derivative of the Sanskrit word 'Aranya' meaning the undisturbed forest, but in different parts of the state they are referred to as Deora, Malvan, Deorai, Rakhat and Bani. Their existence can be traced back to the pre-agrarian hunter gatherer phase of human civilisation (Kosambi, 1962). Orans vary in size depending on their specific religious significance to a particular community. The community conserves Orans mainly by prohibitions against hunting and logging activities. The management rights of Orans are vested in the community which maintains traditional customs, practices and knowledge related to

the conservation of Orans and their biodiversity (Malhotra, 1998).

Orans are the remnants of large ancient forestlands (Chandran & Hughes, 1997) and cover a wide variety of habitats and exhibit high biodiversity. Orans have unique vegetation types and species composition based on local climatic and soil conditions (Gadi, 2016). Orans of the Indian Thar Desert traditionally harbour various endangered, threatened and endemic plant species, including several medicinal plants like Guggul (*Commiphora wightii*), Pimpa (*Caralluma edulis*) and Khiroli (*Glossonema varians*) (Gehlot et al., 2014; Khan et al., 2008). The collection of fuel wood, fodder and medicinal plants is allowed to some extent (Hughes & Chandran, 1998). Generally, only the ripe and fallen fruits or the dead and fallen timber are used by the local

communities. Orans not only conserve biodiversity, in the arid zone they provide food and fodder under harsh climatic conditions such as prolonged droughts (Rawat & Dookia, 2017). In the Thar desert where every single drop of rain matters, Orans contribute to groundwater recharge (Mukhopadhyay, 2008).

The Bikaner district has been selected as the pilot site for this study as it covers the less researched part of the Thar desert (Figure 1). Here, Orans have an ancient history and serve as meeting places for the community and contribute to the social economy and wellbeing of local communities in multiple ways (Parihar & Kumar, 2016). The history of state forest management in Bikaner district dates back to 1910 when the first state forest officer was appointed and afforestation projects were started. Several conservation or community reserves were also planned under the 1972 Wildlife Protection Act in the district thereafter. In this context, our study makes plain that local community-led management can be strengthened through increased support from and collaboration with government services and conservation researchers.

Size and scope of Orans as a network for conservation

The first-ever study on sacred groves reported their presence in most parts of India (Gadgil & Vartak, 1975). Gadgil (1985) recorded that ethnic cultural practices of sacred groves conservation have helped the nation to maintain a stable and sustainable ecology. While in 2005, Ghokale noted a shortage of detailed studies and documentation of sacred groves. Sharma and Kumar (2021) more recently analysed the ecological and socio-cultural significance of sacred groves in India including the strategies to conserve them. Initial nationwide



Undisturbed Thar desert © Monali Sen

studies estimated that there are 100,000 to 150,000 sacred groves in India (Malhotra et al., 2001). In contrast, the Environmental Education Centre has documented only a total of 10,377 pan Indian sacred groves (Amirthalingam, 2016). Tewari et al. (2013) identified nearly 25,000 Orans in Rajasthan covering approximately 600,000 ha. of which 537,000 ha. are located in the western Thar desert region (Singh, 2011, 2014). The Arid Forest Research Institute (AFRI) documented 123 Orans along with 131 tree species from 48 families, mostly in the non-desert districts of Rajasthan (AFRI, 2014) under an initiative of the Rajasthan Forest Department.

Our focus is on the Thar desert's Bikaner district, one of the 33 districts of the Rajasthan state (see Figure 1). Here we documented various types of community management practices in Orans and collected GPS coordinates, photographs, soil type, flora, fauna and threats to Orans. We stored this information on a database and created a map of Orans. The data were analysed to understand Oran distribution, area coverage and numbers per village and sub-district. The area covered by Orans varies between the six sub-districts: Bikaner sub-district 10,107 ha., Lunkaransar 8,861 ha., Nokha 3,603 ha., Kolayat 12,086 ha., Pugal 8,981 ha. and Khajuwala 1,328 ha. The results show that there are a much higher number of Orans in the desert zone of Rajasthan than has been reported in various studies to date.

The next level of analysis focused on a comparison between two Bikaner sub-districts, Kolayat and Nokha (see Supplementary Online Material Figure S1 a-d). The knowledge that Kolayat has larger Orans (>500 ha.) in comparison to Nokha enabled the planning of a site location for an afforestation programme. Kolayat also has a pilgrimage site connected with the Vedic sage, Kapil Muni who shed his mortal body under a Ficus tree. While Nokha is spiritually significant to the Bishnoi Community, its Orans have been more

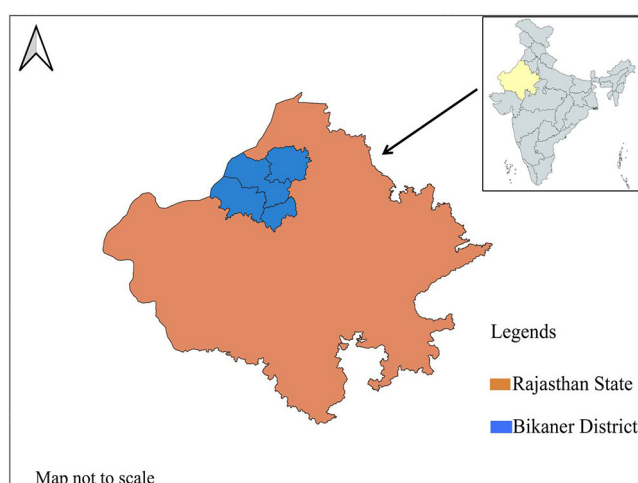


Figure 1. Location of the study area, Bikaner district of Rajasthan state, India



Meeting with villagers © Monali Sen

fragmented under industrialisation than those in Kolayat. As a result, a significant number of remaining biodiversity-rich Orans remain under threat and require protection on the ground.

LIMITS TO LEGAL PROTECTION AND PROTECTED AREAS, THE PROMISE OF OECMS

The National Environment Policy of India (2006) stresses the importance of the conservation of Orans, because of their “incomparable values”. Yet, Orans face multiple threats such as mining, pollution, uncontrolled development and encroachment by increasing human populations and livestock. Usually the state government regulates such threats under the Indian Forest Act, 1972 or the Wildlife Protection Act (1972). However, Orans are community-owned and protection under state conservation legislation does not apply. Khan et al. (2008) have pertinently suggested bringing important sacred groves under the Protected Area Network.

In India, protected areas form the foundation for national and international biodiversity conservation strategies and commitments. The International Union for Conservation of Nature (IUCN) has clear guidance on the various categories of protected areas and their governance and management criteria, and recognises sacred natural sites and sacred groves in each of these categories (Dudley, 2008). Outside the recognised protected area networks, biodiversity can also be effectively conserved in sacred groves, areas for drinking water or even military areas. These areas are

grouped in the category of ‘Other Effective Area-based Conservation Measures’ (OECMs). In OECMs, biodiversity conservation is achieved as a by-product or secondary objective in areas outside the identified protected area networks (IUCN, 2019).

Together the protected and non-protected areas create an integrally connected conservation landscape, thus contributing to achieving the goal to conserve 30 per cent of the planet by 2030. This study brings attention to the potential of the Orans to conserve biodiversity under community ownership through traditional knowledge and cultural values. However, the government and local authorities are hampered in protecting and conserving Orans because these have not been appropriately defined or classified in government records. In Rajasthan, there is no relevant forest or environmental legislation which distinctly identifies Orans as a conservation category, they are generally referred to as ‘Culturable Waste Land’. As a consequence, the Orans of Rajasthan are not legally protected areas. However, the 2010 Rajasthan State Forest Policy acknowledges the importance of Orans as examples of religious practices in conservation. The policy prescribes the inventory and database development of the Orans at the District level in Rajasthan state.

An inventory of Orans’ biodiversity and socio-economic importance will help to populate the database and establish a baseline for the distribution and diverse

values of Orans. This will enable future studies on land use and land cover changes over time and the role of Orans in biodiversity conservation and climate change adaptation strategies. As our pilot study in Bikaner district shows, this information can be used in collaborations between local communities and the Forest Department to develop community level conservation management and policy recommendations for long-term goals. Therefore, Orans have the potential to contribute towards India meeting the 30 per cent target, especially if India can recognise Orans as valuable to biodiversity conservation and place them within an appropriate legislative framework.

BARRIERS OR BENEFITS FOR ORANS UNDER THE 30 PER CENT TARGET?

In 2020, the Government of India created a national-level committee led by the Wildlife Institute of India, which developed Criteria and Guidelines for identifying OECMs based on 12 categories of potential OECMs, including sacred groves (WII et al., 2020). Subsequently, a committee headed by the National Biodiversity Authority of India identified OECMs on the ground and prepared guidelines for identification and reporting. A final compendium of OECMs in India identified 14 OECMs as individual sites and documented their conservation practices (UNDP & NBA, 2022). Regrettably, sacred groves and Orans have been omitted from this compendium leaving their potential for the conservation of biological and cultural diversity under-recognised. Despite this missed opportunity to prioritise sacred groves and Orans, the National Biodiversity Authority, under the 2002 Indian Biodiversity Act, continues the inventory of biodiversity on community-owned land through the People's Biodiversity Register. This forms an important resource of Indigenous traditional knowledge, biodiversity checklists, and ethno-societal information which may be used in the assessment of Orans and thus direct attention to their role as socially protected areas that require legal recognition to secure their protection and contributions to global biodiversity commitments.

We highlight the ongoing race between Oran conversion (loss) and Oran conservation (protection). Unfortunately, much traditionally conserved Oran land is highly neglected and vulnerable to threats from outside the communities as well as to the changing value systems of local people themselves. Prioritising conservation funding should focus on a) database development and the documentation of fast-vanishing local knowledge as a basis for b) strengthening locally grounded community-led management of their green cultural heritage, and c) conferring legislative

protection on Orans in order to reduce threats to their existence. Achieving these objectives would benefit from recognising Orans' contribution to the conservation of biological and cultural diversity under international biodiversity targets.

Orans are not limited to the Thar desert. To help prioritise conservation efforts, their assessment and protection could be up-scaled to the state of Rajasthan, to the rest of the country as well as other places across Asia. At a global scale but specifically in Asia, the importance of sacred forests for the conservation of biological and cultural diversity has been well researched and documented (Coggins & Chen, 2022; Dudley et al., 2010; Verschuuren & Furuta, 2016). These studies also signal trends of increasing conflicts between the conservation of biological and cultural diversity on the one hand and rapidly increasing development pressures and lack of proper legal protection, on the other hand. However, strengthening their local management and systematically supporting them through national conservation programmes and science appear as successful pathways for unlocking their full potential in contributing to broader conservation approaches.

SUPPLEMENTARY ONLINE MATERIAL

Figure S1

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RESUMEN

El Convenio sobre la Diversidad Biológica tiene como objetivo proteger el 30% de la superficie terrestre y marina de la Tierra, incluidas las zonas ricas en biodiversidad situadas fuera de las áreas protegidas reconocidas. En la India, muchas arboledas sagradas podrían inscribirse como "Otras medidas eficaces de conservación basadas en la zona". Este estudio explora el potencial de las arboledas sagradas de Rajastán o Orans para contribuir a este objetivo. Aunque el estado de Rajastán tiene muchos Orans, su rico patrimonio cultural y sus prácticas tradicionales están poco documentados. Los orans son parches de bosques comunitarios de importancia religiosa y espiritual, a menudo asociados a un templo o a una leyenda. Según estimaciones conservadoras, los oranes cubren más de 600.000 hectáreas de tierra en el estado de Rajastán. Sirven de reserva para el pastoreo, los productos forestales, la infiltración de agua y como mecanismo para hacer frente al cambio climático en las regiones áridas. Este estudio es el primero que combina la recogida de datos a nivel de base en una base de datos que permite cartografiar y analizar los oranes del distrito de Bikaner, en el desierto del Thar de Rajastán. Genera nuevos conocimientos sobre la distribución, las diferencias y las similitudes entre los oranes y los valores y prácticas tradicionales asociados a ellos, frente a los retos y las amenazas a los que se enfrentan debido a la falta de protección legal. ¿Cómo podría beneficiar a su conservación la inclusión de los oranes en los esfuerzos de la India por alcanzar el objetivo del 30% en el Marco Mundial de la Biodiversidad?

RÉSUMÉ

La Convention sur la diversité biologique vise à mettre sous protection 30 % des terres et des mers de la planète, y compris les zones riches en biodiversité situées en dehors des zones protégées reconnues. En Inde, de nombreux bois sacrés pourraient potentiellement être inscrits au titre des "autres mesures efficaces de conservation par zone". Cette étude explore le potentiel des bois sacrés ou Orans du Rajasthan à contribuer à cet objectif. Bien que l'État du Rajasthan compte de nombreux Orans, leur riche patrimoine culturel et leurs pratiques traditionnelles ont été peu documentés. Les orans sont des parcelles de forêts communautaires ayant une signification religieuse et spirituelle, souvent associées à un temple ou à une légende. Selon des estimations prudentes, les orans couvrent plus de 600 000 hectares de terres dans l'État du Rajasthan. Ils servent de réserve pour le pâturage, les produits forestiers, l'infiltration de l'eau et comme mécanisme d'adaptation au changement climatique dans les régions arides. Cette étude est la première à combiner la collecte de données au niveau local dans une base de données permettant la cartographie et l'analyse des orans dans le district de Bikaner, dans le désert de Thar au Rajasthan. Elle donne un nouvel aperçu de la répartition, des différences et des similitudes entre les orans et les valeurs et pratiques traditionnelles associées, ainsi que des défis et des menaces auxquels ils sont confrontés en raison de l'absence de protection juridique. Comment l'inclusion des orans dans les efforts déployés par l'Inde pour atteindre l'objectif de 30 % fixé par le Cadre mondial pour la biodiversité pourrait-elle être bénéfique pour leur conservation?