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Social dimensions of crane and wetland conservation in African rural landscapes: insights from Kenya, Uganda and Zimbabwe
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Summary

The social dimensions of crane and wetland conservation in rural landscapes: Insights from Kenya, Uganda and Zimbabwe

Research aimed at gaining a better understanding of the social dimensions of species and habitat conservation outside formally protected areas is increasingly taking centre stage in the ongoing drive to advance conservation science, practice and policy. Among others, social dimensions research fulfils three broad and interlinked goals: (1) understanding patterns, drivers and results of interactions between human communities and species targeted for conservation, (2) discerning ways in which human values and needs can be mainstreamed into conservation action plans without compromising the landscape functions and species requirements, and (3) determining impacts of conservation actions on human welfare, species survival and habitat integrity. Outputs of social dimensions research contribute to socially acceptable conservation plans supported by resource user communities, administrative authorities and conservation agencies. This is critical from a sustainability perspective since it lays the foundation for local stewardship of landscapes and natural resources therein, including threatened species.

This thesis focuses on the social dimensions of crane and wetland conservation in rural landscapes in Kenya, Uganda and Zimbabwe. It draws on findings from research conducted between 2011 and 2014. The study sites comprised six landscapes containing wetlands that support nationally significant crane populations in the three countries. Although the research focus was predominantly on landscapes that globally significant populations of the Grey Crowned Crane, one chapter is dedicated to social dimensions of Wattled Crane conservation in Zimbabwe. Key findings from this study contribute to an improved understanding of interactions between cranes and rural communities and provide insights into strategic approaches for addressing the decline of cranes within their range in East and Southern Africa. Despite their documented decline in recent years, cranes still fall into a category of species that have a low conservation profile and do not receive much attention from conservation agencies across their range. Not much research has been

conducted to generate knowledge on the social dimensions of African cranes, and this hinders evidence-based conservation. This thesis is therefore pioneering in that it tackles social dimensions research questions on crane and wetland conservation outside protected areas, i.e., in rural landscapes valued for community livelihoods.

Research that culminated in this thesis was conducted in three laps. First, an analysis of human-crane interactions and the social causal chains behind threats to cranes and wetlands was conducted. Second, social and institutional processes and associated conservation outcomes under site-focused conservation projects were evaluated. Third, building on evidence generated from the first two laps, a conceptual conservation model for effective crane and wetland conservation was developed. This was achieved by integrating knowledge generated through the human-crane interface analysis and the promising field conservation approaches discerned from a long-running project implemented in Kenya since 1990, projects that were initiated in the early 2000s in Uganda and Zimbabwe.

Chapter 1 is an introduction to the thesis. It describes the central problem tackled in this thesis, the decline of cranes in socio-ecological landscapes. It highlights how the decline can be conceptualised as an environmental problem driven by human factors, including livelihoods, land use patterns, community environmental values, local natural resource management institutions and national policy frameworks. The theoretical foundations of human-environmental interactions, the utility of problem analytical frameworks and the relevance of conceptual models for conservation planning are then presented. Interventions to mitigate the decline of cranes proposed in this thesis are inclined towards people-centred conservation, which places grassroots communities, environmental extension agencies and administrative authorities at the centre stage of environmental problem-solving. In this regard, the underlying principles of people-centred conservation are elaborated, highlighting how the inclusion of social science and social dimensions into the conservation biology realm is contributing to improved conservation approaches. Acknowledging this, the chapter gives an overview of how these social dimensions have been framed and evaluated in practice. The chapter concludes with a presentation of the study objectives and structure of this thesis.

Habitat loss, emanating from human-induced alteration of vegetation structure and hydrological regimes of wetlands, is a major and the most prevalent threat to Grey Crowned Cranes in the study

countries. In Chapter 2, habitat loss processes at six wetland sites, selected in Kenya, Uganda and Zimbabwe, are analysed. The Action-in-Context (AiC) framework was used to trace the social causal chains behind habitat loss, focusing on the linkages between human actions, motivations and underlying drivers of actions. Key actions contributing to crane habitat loss fall into five broad categories: ditching to drain water from agricultural fields, wetland edge cultivation, the introduction of alien invasive trees, overgrazing and trampling by livestock, overharvesting of wetland plants and persistent human presence in wetlands. The analysis revealed how increasing demand for arable land due to population growth triggered agricultural encroachment onto wetlands and led to the evolution of local institutions governing wetland subdivision, privatization, access and utilization in Kenya and Uganda. Past policies (land, agricultural and economic) and politically-driven government declarations influenced wetland ownership and utilisation patterns, with implications on wetland ecological integrity across the sites. Land tenure facets (ownership, access and utilisation regimes) influence the capacities and motivations of wetland users for the management of wetlands, with implications on crane habitat suitability. At all sites, cranes now depend on either expanse of unconverted wetlands managed as commons or remnant wetland patches in agricultural plots managed by individual households. Such non-unconverted wetlands, noted to be larger in Zimbabwe than in Kenya and Uganda, offer windows of opportunity for securing the crane breeding habitats in rural landscapes. Overall, findings reinforce the need to critically analyse local contextual factors to identify site-specific threats and their drivers to secure habitats, leveraging values and institutions that prevent unsustainable utilisation of wetlands.

Located in central Zimbabwe, the Driefontein Grasslands form a unique landscape in which the largest population of Wattled Cranes still thrive in a rural setting in the country. For decades, cranes thrived in relatively undisturbed seasonal wetlands scattered in landscapes devoid of human settlement. The land resettlement programme implemented in 2000 saw drastic land use change from commercial cattle ranching to subsistence mixed farming. Chapter 3 unravels key social, political, economic, cognitive and biophysical factors that influence interactions between cranes and the subsistence farming communities. Guided by the Action-in-Context Framework, an analysis of the human-crane interface exposes a myriad of social issues that drive the emergence of threats to cranes. Apart from wetland cultivation, overgrazing and human disturbance, community inaction on dam maintenance and ineffective local fire management systems are also revealed as drivers of breeding habitat loss. Positive attitudes towards the cranes attributable to a decade-long externally-driven conservation outreach were documented. Village-level social control

mechanisms seem to be strong enough to suppress agricultural encroachment into wetlands important for cranes. Four thematic areas to facilitate strengthening community-based conservation action are proposed: (1) strengthening attitudes towards cranes and values attached to wetlands, (2) supporting inherent local resource management institutions that are positively contributing to the maintenance of wetlands as suitable crane habitats, (3) facilitating collective actions to maintain ecosystem services provided by wetlands for sustaining livelihoods and habitats, (4) promoting appropriate technologies and practices to reduce community reliance on wetland-based crop production and (5) creating platforms for shared learning among local communities and supportive agencies for ownership and sustainability of conservation interventions.

In Kenya, the Kipsaina Crane and Wetland Conservation Project, is renowned as a model community-led conservation initiative, started in 1990. Chapter 4 draws lessons on the effectiveness of community-led conservation approaches through an evaluation of this community-led initiative. It explores the protracted social processes and conservation associated outcomes under four project interventions (tree planting, livelihood schemes, environmental education and awareness, regulation of wetland utilisation). The findings confirm the pertinent role of transformational leadership in swaying community environmental values, motivations and actions to develop solutions to environmental problems. The project is a classic case of how pre-existing community-based social groups can be successfully integrated and nurtured so that they support conservation goals. It proves that through strategic facilitation, conservation agendas can be gradually embedded into community social dialogues and problem-solving arenas. Project experiences showed that the promotion of alternative livelihoods to reduce pressure on habitats may not lead to tangible conservation impacts if the livelihood-conservation linkage is not present. Although popular project entry interventions (technologies) and entry points (social interaction platforms) can effectively give projects local relevance and contribute to widespread acceptance of the projects, there may be a need for decisive actions to ensure that the interventions do not perpetually proceed on a pathway that is only weakly linked to the ultimate conservation targets. An exemplary intervention involving the development and implementation of community-level institutions for site-, resource- and species-stewardship was documented. The case study shows that community-led conservation involves complex social processes that allow communities to learn and adapt their values and actions over time, leading to local stewardship of sites and species in human-dominated landscapes.

In Uganda, crane and wetland conservation efforts involved the development of grassroots institutions (community groups and locally-enforced wetland management systems). Chapter 5 presents results of an evaluation of the institutional development process and the ensuing environmental conservation impacts at three sites where conservation projects were initiated in 2002. The evaluation reveals the efficacy of developing and nurturing local institutions to improve the management of landscapes containing habitats critical for cranes. It shows that institutional development can be aided by process-based factors (facilitating community agreements on tenure and resource use, adding value to resources and landscapes, innovative facilitation approaches) and complementary community attributes (transformational leadership, history of collaboration and collective interests, motivations for various actors, power relations) as well as external environmental factors (enabling policy, supportive government programmes). Institutional development around cranes can, however, be hindered by external factors such as land tenure complexities and decentralisation of environmental rights by local administrative authorities. Desirable land tenure systems, property right regimes and resource use patterns necessary for habitat protection and species survival can be attained through strategic and protracted local institutional development. Engagement of leadership structures, shaped by and recognised through decades-long fulfilment of social roles, may positively influence the development of institutions in support of conservation. A key lesson from the study is that inherent and covert motivations for leaders and local communities to participate in institutional development need to be well understood and managed when building and strengthening local institutions for effective conservation.

Chapter 6 is a synthesis of key findings from the preceding chapters, addressing the question of what works for cranes and wetland conservation in rural landscapes in East and Southern Africa. It fills a critical conservation knowledge gap by presenting a conceptual model developed by piecing together key project design considerations, field methodological approaches and enabling environmental conditions that were observed to have contributed to social and ecological impacts at each of the six study sites. The model is founded on the premise that cranes can survive in socio-ecological landscapes if the conservation agenda of the species and its habitats are effectively mainstreamed into the interaction platforms, communication forums and problem-solving contexts of the actors, from community to national levels. Promotion of land management practices that allow communities to balance wetland utilisation and maintenance of suitable

habitats for cranes can provide opportunities for the long-term survival of the species. Experiences from the three countries provided tangible lessons of how to promote “conservation with use” which increases community stewardship of threatened species and fragile habitats. Also documented is the critical role of local conservation champions in leading community self-organisation, promoting the adoption of good livelihood and environmental practices for species and habitat conservation and articulating the conservation agenda so that it resonates with local agendas. Participation of local communities in environmental actions can contribute to experiential learning, enhance capacity for problem-solving, improve knowledge about species and habitats and improve emotional attachment to species and habitats. There is a need for innovative ways to shape local institutions to avert the tragedy of the commons in wetlands, which contributed to the protection of nesting sites and enhanced breeding success.

In a nutshell, this thesis dispels the gloom and doom mindset and offers hope for cranes. This hope emanates from encouraging wide-ranging field experiences that should inspire positive thinking among conservationists, local communities, national governments and project donors. Securing the future of cranes in human-dominated landscapes in Africa hinges upon nurturing the environmental motivations, commitments and actions of local communities, within a supportive framework of local administrative and national policies, priorities and plans.