

Damgah

A Traditional Caspian Agroecosystem for Trapping Migratory Waterfowl Acting as a Potential Avian Sanctuary

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Abstract: On the south coast of the Caspian Sea, certain agroecosystems called *Damgahs* serve as winter habitats for migratory birds, where people have devised artificial wetland systems in the fallow winter rice fields as an additional livelihood strategy using natural resources around them. The *damgahs* attract thousands of waterbirds, making their protective role similar to that of natural core zones in a biosphere reserve. With a two-hundred-year-old history, *damgahs* have been ecologically sustainable, as each enjoys a high degree of security, like a small island inside a large ecosystem. Community relations and economic realities are key elements in preserving this vital agroecosystem, forming part of the history of people relating to nature in mutually beneficial ways.

Keywords: Caspian littoral, migratory bird wintering sites, people and nature, rural architecture, Siberian crane, traditional knowhow, waterfowl

In the northern, humid provinces of Iran, there are rice fields that get flooded in winter, becoming natural wetlands that are used as wintering habitats and foraging sites by millions of migratory waterbirds (Ferguson 1959; Scott 2010), as witnessed by Ellen Vuosalo-Tavakoli in the early 1970s in Anzali marches in Guilan.¹ This region once hosted many more millions of birds than it does today, as recorded by travellers in the distant past (Gabriel 1952; Schuz 1959). They fly south in summer to this semi-tropical climate from the northern Palearctic region. In one province, Mazandaran (see ICS 2013), there are certain special semi-natural, traditional agroecosystems remaining from the past, in three contiguous village communities of Fereidoonkenar, Sorkhrud and Ezbaran, by now grown into towns.



In a natural habitat shared by humans and wild animals, such as a nature reserve, a balance – say, peace – needs to exist between the co-inhabitants in order to retain sustainability. In the task of taming nature, there develops a sensitive, inter-responsive relation between people and wildlife that allows their coexistence. If such a mutually dependent system becomes threatened, the success of managing its protection depends on restoring the balance between the needs of wildlife conservation and those of the local people, which in turn requires cooperation between the keepers of the ‘semi-reserve’ and the larger community. Where people are directly involved and responsible for managing their own environment, which includes the wildlife habitat in their land, they often acquire it as family and cultural heritage. This naturally includes the ‘baggage’ of the special relation to nature inherited by growing up with it (Stuart 2007). Government authority has had little to do with these inherited systems. They are typified as community conserved areas (CCAs), according to recent International Union for Conservation of Nature (IUCN) terminology, where ‘the history of conservation and sustainable use in many of these indigenous areas is much older than government-managed protected areas’ as explained in IUCN publications (Smyth 2015)

Early records of researchers visiting Mazandaran² have included bird lists but only of passerines in the Hyrcanian forests – no waterbirds, which include all waterfowl (Blanford 1876; Gibbs 1878). Later reports from travellers such as the French scholar Hyacinth Rabino (1877–1950), whose prolific writings have been translated into Persian (Rabino 1928), and his predecessor Edward Gibbs, were found to be mostly anthropologically or socioeconomically oriented observations. We should note, however, that we could not check the many reports of the hundreds of other foreign scientists known to having travelled to Iran in the past (Rooselaar 2007).

Similarly, the more recent reports, such as the historical and geographical writings of the Mazandarani scientist Manuchehr Sotoudeh (1913–2016), refer to toponyms such as Ferikenar (Sotoudeh 2011) – today known as Fereidoonkenar, the place of the *damgahs*. Also, citations of rice fields and forests, such as those by J. D. Morgan in 1898 and US diplomat Samuel Benjamin (1883)³ are interesting in a geographical context, but they lack even inferences to waterfowl or *damgah* keepers (Vuosalo-Tavakoli 2003). To quote Benjamin (1887) on his entering Iran via Anzali/Rasht in 1882:

In the first hours riding proved to be a pleasant sensation. The surrounding landscape was attractive and beautiful. Generally we passed through rice fields and then reached the forest. It was a great pleasure to sit out in the balcony and watch the sunset in the far horizon, painting the sky in hues of gold and red. The chirping of the birds further enhanced the scene.

Visits to the usually clandestinely kept *damgahs*, limited even today, would have been unlikely even had they been in existence a couple of centuries ago, as the *damgah* keepers today claim. Although in the nearby ‘nail-producing’

region in Kandelous, the villagers still talk about the visit of Nader Shah Afshar⁴ during his domain in Mazandaran, no such stories exist about the *damgahs*. This implies that oral history remains the most valid source of determining the age of the *Damgah* system.

The subject of this article refers to a traditional practice of trapping waterfowl by building an artificial wetland system, called *Damgah*, devised by rural people as an additional winter livelihood by using natural resources around them. An attitude towards this mode of interaction between humans and wildlife (i.e. a relation of utilisation of surrounding nature) is in our modern era considered exploitation (Shrub 2013). Yet, it is still commonly seen as humanity's right over nature, displayed since ancient times presumably by prehistoric hunter-gatherers in gaining their livelihood, given that nature has offered abundance until relatively recent times (Ferguson 1959; Stevens 1971) but has dramatically reduced in the past quarter of a century. Severe environmentally destructive trends all over the world, such as climate change, are threatening both the local people's livelihoods and the safety of the wild bird habitats – an often reported plight shared globally by virtually all wetlands (i.e. waterbird wintering habitats, including *damgahs*) located in the vicinity of humans. While the *damgahs* are created for the people's own needs, they incidentally also benefit their targets, the wintering wild migratory birds. The threats to this seasonal habitat of importance have become the reason for lauding this *Damgah* trapping method as desirable to be maintained and protected. In fact, it can be supported as a kind of sanctuary for migratory birds, especially for rare species such as the Siberian crane (*Grus leucogeranus*). Its first recorded observations by the renown scientists N. A. Zarudni and Peter Pallas (1773) appear in early classifications (Birula 1912), studied thoroughly only much later by the founders of the International Crane Foundation (ICF) (Archibald 1982; Sauey 1985) by aegis of the 'MOU concerning the conservation of Siberian Crane (SCC) (UNEP 1999).

The Fereidoonkenar International Ramsar Wetland Site

On the south coast of the Caspian Sea in northern Iran, annual climatic conditions developed (albeit in irregular patterns) during the more recent millennia (Aladin and Plotnikov 2004), which created a geo-ecological space of international importance, especially for migratory waterbirds. These conditions involve abundant rains that create wetlands with hundreds of temporary lakes, landscapes also used today as rice fields, on which *damgah* keeping is dependent.

Such an area in Mazandaran has become known as the International Ramsar Wetland site of Fereidoonkenar (FDK) since 2003 and has been an IUCN/CCA since 2009. Its international importance had already been acknowledged before the Islamic Revolution (1979), with its rediscovery in the (FDK)

Damgah in 1978. The Siberian crane is a highly endangered species (according to the IUCN RED LIST) – this ‘Lily of birds’, as Georg Archibald would often fondly say. He had already visited Iran (Archibald 1975), pre-planning to find a suitable winter habitat for this species in southern Iran. The Siberian crane had been last identified in the northern provinces about 60 years before, although it was wintering in the *damgahs* very likely all along, unidentified among numerous great white egrets. Then, at the suggestion of M. Ashtiani (1985) – after the discovery of the crane in FDK by Ashtiani in 1978 together with J. Mansoori (personal communication) and its definitive identification by D. A. Scott, all engaged by DOE at the time – its monitoring was taken up by a zoologist, Ellen Vuosalo Tavakoli (1987) at the local university and who formed her NGO / MCCA 20 years later.

All along, the ecological value of the *Damgah* has been overlooked recently for negative socioeconomic reasons, making the artificial wetland in need of serious protection. The whole natural ecology of local areas is threatened by human impact, such as urbanisation, inappropriate land use or other exploitation, such as hunters and illegal trappers. Moreover, the failure or lack of both local and international efforts, like the multimillion-dollar United Nations Environment Programme (UNEP) Siberian Crane Wetland Project (SCWP) project of six years (Edwards 2012) mean that these widely acknowledged threats to the *Damgah* have not been confronted successfully or ameliorated. No communication tools were put in place to deal with the problems of this agroecosystem, which rely on the relations of the community vis-à-vis the authorities, nor were there any environment friendly practices developed to enhance the protection of the wintering migratory birds. Consequently, the fate of the *Damgahs* as a traditional entity and their safety as a ‘bird sanctuary’ was left at the mercy of ad hoc socio-economic conditions.

This artificial FDK wetland hosts wild waterbirds as a silent refuge, for birds which otherwise would have to use the available ‘*ab-bandans*. These natural wetlands or ponds in the region exist without protection or control by government or any other authority, exposing the waterbirds to poachers using ingenious, violent trapping methods, which are well known and well reported, as mentioned earlier (Ferguson 1959; Savage 1963, 1968).

History of *Damgah* Know-How

There are reports dating rice (*Oryza sativa*) being grown in the Caspian region from the fourth century BC up to the thirteenth century AD before the Islamic period, thus eliciting scholars’ conclusion that ‘the precise time as to when rice was introduced to the Caspian region is unknown’. Rice fields were developed relatively late in Guilan and Mazandaran, introduced in the early 1800s as an agricultural crop replacing wheat.⁵ Traveller J. D. Morgan, referred to above, recounts his observations of forests and rice fields in 1898: ‘The forests were



Figure 1: *Damgah* of Ezbaran (2004–2005) with three wild Siberian cranes and three *damgah* units (*doomas*) seen along back wall (photograph by Hamid Khodashenas).



Figure 2: A *damgah* keeper Jafari releasing a tamed duck to attract wild ducks (photograph by Massoud Mohammadi).

luscious and forage grew to great heights. [. . .] Whereas, in the lower extremities, the large forests of the region, rice fields and swamps began.

Rice fields, but no *damgahs*. According to the memory of local farmers, *Damgah* systems were still built in many villages around Fereidoonkenar until a few decades ago, while only three are practising this unique ‘art’ in current times. The number of individual *Damgah* units, called *doomas* (see Figure 1 and Figure 2), has varied in successive generations and with shifting economic condition, as has the progressive – nearly annual – attrition of all birds. In Figure 1, among the waterfowl, the last three surviving wild Siberian cranes and three *damgah* units (*doomas*) are seen.

Oral History

The most valid source of estimating the age of the *Damgah* system is oral history, available by scanning the memories of older *damgah* keepers. The oldest one still alive today, 105-year-old Hadji Yazdane Faramand Yazdani of Sorkhrud, recalls learning *damgah* keeping from his father a hundred years ago (see Figure 3).

This transmission story, repeated today by his grandchildren and by the younger farmers/*damgah* keepers, dates back to about 1917, to the time of the First World War. Hadji Yazdani’s memory span, tracing back to his grandfather, leads back 130 years to the 1890s. Yazdani’s centenarian contemporaries, interviewed by and known to Vuosalo-Tavakoli, were mostly farmers, who during the past decades since the beginning of the Islamic Revolution (Vuosalo 1985) have participated in projects by our NGO, the Mazandaran Crane Conservation Association (MCCA), formed in 1998 (UNEP 1999). They practised the *damgah*-keeping tradition transmitted through generations. This community cooperation started during a time when little environmental information was emitted from Iran (Khaleghizadeh 2011).

Farmer H. Fekri (Figure 4) in Fereidoonkenar (who would now have been Yazdani’s age) was the rice farmer who in his seventies first showed his *damgah* to Vuosalo-Tavakoli in the early 1980s. He related to her the story of his father (pictured with suit and tie on the mantelpiece), whose childhood *damgah* experience also stretched back two to three generations to end of the nineteenth century (1890), or about 130 years ago.

Today, not all sons of farmers become *damgah* keepers, not even rice farmers anymore. Farmer R. Peivasteh, a high school graduate and a retired *damgah* keeper aged 66, is the owner of one of the plots divided at change of generations in Feidoonkenar village, which is a big town today. He tells how his children have opted to become not farmers but college graduates. In summary, based on currently available oral history, the beginnings of the *Damgah* tradition can be traced to the 1890s. If we extrapolate back to the previous few generations (a further 50 years back), about 180 years ago, it would



Figure 3: Hadji Yasdani, 105-year-old former *damgah* keeper in Sorkhrud (photograph by Ellen Vuosalo-Tavakoli).



Figure 4: Mr Fekri, former band *damgah* keeper in Fereidoonkenar with Finnish tourists visiting the Damgah in 1985 (photograph by Ellen Vuosalo-Tavakkoli).

coincide with the early 1800s, the period that the *damgah* keepers quote as the age of their trapping method.

This period also coincides with the records of when rice fields were introduced in the early 1800s to the Caspian littoral. Many references can be found to rice fields observed later in that century, descriptions of travellers such as Benjamin in 1882–1883: ‘The surrounding landscape was attractive and beautiful. Generally we passed through rice fields and then reached the forest’ (Benjamin 1883). The more recent, multiple studies on rice and rice fields are centred on economic aspects, confining them to economic systems (Haim and Kedourie 2005). This is not surprising, as rice is a seasonal summer crop, and *Damgahs* are built in the fallow winter fields in Mazandaran.

The *Damgah* System

The three-town *Damgah* complex of FDK consists of about three hundred *damgah* wetland units in a three-hundred-hectare area owned and managed privately by local rice farmers with the economically driven purpose of trapping



Figure 5: Siberian crane *Grus leucogeranus* in Fereidoonkenar, December 2017 (photograph by Massoud Mohammadi).

waterfowl (see also Figure 1 and Figure 2). In turn, similar to a bioserve, they offer fodder and sheltered roosting places in their seasonally fallow fields for multiple species of waterbirds, including many rare and endangered species such as the Siberian crane. Nowadays there is only one, last wild Siberian crane remaining of the western flock, which has been returning alone to the FDK *Damgah* each year ‘right on schedule’ for ten seasons since 2008 (Vuosalo 2013). This avian behaviour of one lonely spectacular bird has caught the admiration of the local people, making it the pride of the FDK *Damgah* and a symbol loved by children. This one Siberian crane, named Omid (Hope) by the locals (see Figure 5), and a key species for the international bodies concerned, has become the last hope for saving the *Damgah* system – as the ‘key species’ last surviving wild individual of the Siberian cranes of the western flock.

Since these *damgahs* are utilised and constructed with purely economic intent, they are maintained adjacent to the villages within easy reach, and provide semi-safe seasonal habitats for wild birds, some of which can also be domesticated. The practice of making use of critical natural capital (cf. Adams 2006) – a tradition with a unique, essentially sustainable, non-violent waterfowl-trapping method and centuries-long regional history – also reveals cultural aspects of a dual-purpose ecosystem.

Damgah know-how is required in the building and the annual refurbishing of the traditional *damgah* site. The *Damgah* area is defined by planting



Figure 6: Entrance to a *dooma* (*Damgah* unit) in Sorkhrud (rural architecture) (photograph by Ellen Vuosalo-Tavakoli).

thousands of indigenous trees, such as alder (*Alnus glutinosa*) and maple (*Acer insigne*), making a dam and erecting the necessary permanent structures for trained tame ducks, fodder, shelter for guards, gates and birder towers, serving various purposes. The temporary parts have to be rebuilt each autumn, one month before the migratory birds arrive. The reward for this labour is the seasonal arrival of migratory birds. The site is used by hundreds of thousands of geese, and ducks come to roost, enticed in the beginning of autumn by the fresh seedlings and rice remaining in the fields, and by extra fodder which the trappers regularly provide at night. This system is unique in the world, and the *Damgah* way of life of these rice farmers/trappers is an example of an agroecosystem where people rationally make practical use of their natural resources (Adams 2006) by trapping ducks as an additional livelihood – a sustainable system in traditional circumstances, but seriously threatened under current conditions.

The *Damgah* is also an example of rural architecture, as a cultural-economic endowment created by the people. Each of the approximately 300 *da* units (*doomas*) range from 1,500 to 4,000 square metres in size, bordered by reed walls. Rabino (1913) reports that in 1772 in Mazandaran the living space of people was divided by reed walls, *parchin*. This ancient technique of using reeds for building material is still employed today in *damgah* fencings, entrances (Figure 6) and so on, placing the *Damgah* into an agroecosystem,

comprising cultural elements of ancient rural architecture, as well as materials (reeds) applicable today in ecologically friendly building techniques (Dabaieh 2015; Lankankare 2008).

The *Damgah*-trapping method, described in the map (see Figure 7), refers to the practice of using tamed ducks, namely mallards (*Anas platyrhynchos*), as live decoys; the act requires skill of timing to entice a wild mallard to join the tame one in a trap. The *Damgah*-trapping method is learned by experience. The waterfowl trappers prefer wild mallards, but pintails, shovellers, teals and pochards are also trapped alive, including some rare species, which all end up being killed for food and sale. Yet, with conservation education, these rare birds could be rescued by freeing them back into the lake-like fenced pool. The system itself, along with the migratory birds, makes it an attractive site for ecotourists, as well as a destination for cultural tourism. Even small-scale tourism might actually help preserve the tradition, if carefully planned and properly conducted, which has not been the case. This kind of system, akin to a nature reserve, is known only in this region of Iran, where the experience and knowledge of managing the *Damgah* has been transferred from father to son as a heritage for the generation of an appealing rural lifestyle.

In recent times, villages have become cities with land prices skyrocketing, making selling the land for economic development tempting. However, the rice field/*damgah* interdependent agroecosystem could better serve the community sociocultural character as a cohesive element for sustainable development (Stuart 2007; UNEP/CMS Secretariat 1998, 1999), as they share the same difficulties and needs as well as mutual pride for their traditional cultural heritage.

The potential sustainability of this method is part of the issue much discussed, as the concept could be applied to this method in the past, in a way, as 'fair practice'. The wild duck supposedly 'had a fair chance' to follow the decoy into the trapping pool – before there was overkill – and, in fact, by the end of the season, many learn to avoid doing so. Pintails are especially hard to catch. The actual sustainability, however, has been lost, as the number of *damgah* units has increased from one generation to the next, surpassing the number of migratory birds arriving and exceeding their reproductive capacity (Stolton and Dudley 2005). Moreover, the method needs to be strictly regulated to regain its sustainability (Bell and Morse 1999). Another problem in maintaining the practice lies in the nature of the work, which requires early rising and patient attention, not something modern youth are attracted to without financial or prestigious vocational reward. Ecologically, the lowlands of wide rice fields, inundated with abundant rain after harvesting, have provided relatively mild weather conditions and a suitable space for numerous species of waterbirds (Mansoori 2008). Among these are wintering waterfowl (more than 20 eagles, as well as passerines). The total population of wintering waterbirds in FDK can only be assumed, as even closely accurate counts or records are sadly lacking today, while actual numbers do naturally vary from winter to winter and counting time from one season to another. Current rough estimates by

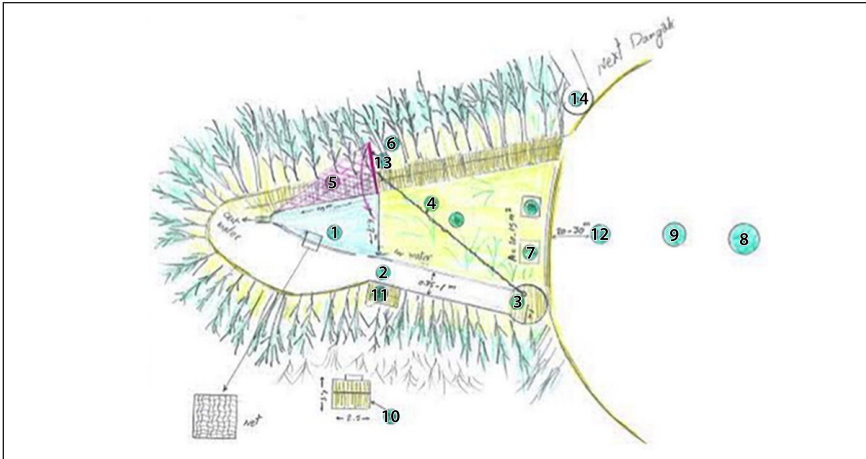


Figure 7: Schematic map of the *Damgah* unit (*doomah*/rural architecture) drawn by Abbas Goli, farmer and *damgah* keeper. The elements for practising the *Damgah*-trapping method.

1. Triangular pool for catching the wild ducks, about ten by six by twenty metres in size.
2. Corridor leading the ducks to the decoy hut (one metre in diameter) where the trapper throws the trained ducks into the team of wild ducks.
3. Trapper's place where to fly out the trained ducks to catch wild ones. A circle with a radius of about 1 metre, with reed cover (decoy hut).
4. Distance between the decoy hut 3 and the catch pool, a stretch camouflaged by reeds (*Phragmites australis*).
5. Nets: reeds or linen or cotton material.
6. Border of indigenous trees (*Alnus glutinosa*).
7. 'Keres' (10 square metres) structure (illegal non-*damgah* method).
8. Centre of *damgah* (about one hundred metres in diameter) where birds stay for security at first in the season.
9. Where they move closer as they become adjusted.
10. Permanent cement hut or structure, a rest place for the trapper.
11. Permanent cement structure, locked tame duck shelter to protect against jungle cats, thieves.
12. Fodder thrown here at a distance of 20 to 30 metres at night for the ducks.
13. Stick to control the catch net in the triangle.
14. Decoy hut of the next *damgah*.

locals estimate between 1 million and 1.5 million waterbirds in winter in FDK in 2016–2017. This season, being colder than normal, has shown higher avian numbers than usual, at the same time also promoting illegal practices, hunters especially catching many swans roosting in unprotected areas (Ezbaran, *damgah* keeper Taghavi, personal communication).

In any event, actual numbers have hugely reduced, as all wildlife in this region has been notoriously targeted by legendary numbers of hunters since

ancient times (Gabriel 1952; Schuz 1959), habits regretfully transferred as heritage. Thus, while trapping wildfowl has evidently been the original economic reason for *damgah* keeping and natural conditions for this practice have long existed, it can be imagined, that in such socio-ecological situations, the wild birds might have found some safety in the *damgah* enclosures like they do today. The *Damgahs* are also used as refuges by small birds, a fact that has received less attention. In the case of resident species, native passerines nest in the leafy woodland branches. On the other hand, many migratory birds, in passing to more southern regions, choose *damgahs* for only a few days to rest and recuperate. In fact, it seems the *Damgah* complex maintains historical migration corridors for waterbirds (Ghasempouri, unpublished research).

Ornithologists from abroad, such as Austrian Leander Khil, also come to record observations of the ecological value of this rich FDK wetland (Khil 2013). It is notable for having several endangered species (Khalegizadeh 2011) such as the lesser white-fronted goose (*Anser erythropus*), the red-breasted goose (*Branta ruficollis*), the ruddy shelduck (*Tadorna ferruginea*), the spoon-bill (*Platalea e rare Siberian cres th leucorodia*) and others (Mansoori 2008). The special significance of the *Damgah* is enhanced by the fact that among millions of migratory birds returning to these semi-natural sites is one single Siberian crane called Omid (Hope), as named by *damgah* keepers. It is the last individual of a worldwide rare species remaining from the western flock of Siberian cranes and has continued to migrate alone for a decade already (2008–2018), flying five thousand kilometres from Siberia to its wintering ground in FDK. Regular reports of migration of all Siberian cranes are published by ICF in ‘Siberian crane flyway news’ (Vuosalo 2013).

Against all odds, birds must be finding these privately owned artificial wetlands – not ‘wildlife refuges’ – the safest roosting sites in the region. Where else could they go when the only other choice is the ‘*ab-bandans*, easily accessible by poachers using hideous trapping methods, accurately documented by some foreign researchers (Savage 1968)? Regrettably, these ‘*ab-bandans* may lie on legitimate use – allowed by the Iranian Department of Environment (DOE) – of private lands and be exploited by the owners for what are considered, besides several other mentions, legitimate livelihood options, while the *damgahs* have erroneously too often been included among the illegal ‘*ab-bandans*, which are open to poachers. Such confusion has led to some foreign support funds being given for the elimination of the *damgah* system.

Conservation and Preservation Efforts through NGOs

If the *Damgah* system is properly recognised as the only trapping system in the region that can with proper control be sustainable, it could lead to converting all the ‘*ab-bandans* with trapping systems to *damgahs*. This has already been shown to be practically feasible with the construction of a new *damgah*

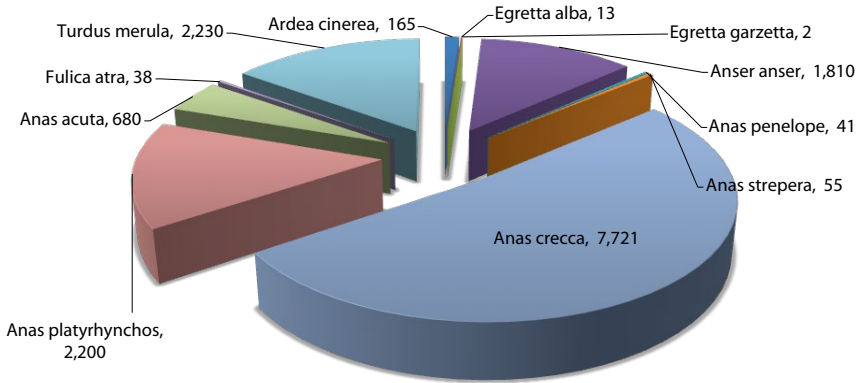


Figure 8: Waterfowl diversity (sample result of workshops held by Yaghobzadeh and Ghasempouri in 2007).

between two other ones as part of the MCCA–Finland project (2007), which over a few years successively attracted thousands of waterfowl, blocking the area from poachers. We at the MCCA systematically investigated biodiversity of waterbird species in the *damgahs* from 2004 to 2007, including biodiversity indices (see Figure 8).

MCCA, as staff of environmental faculties of local universities trained younger high school–educated *damgah* keepers through regular workshops to recognise the scientific importance of their target wildfowl and do regular bird counts in their own *damgahs* (Vuosalo-Tavakoli 2007). This provided them with self-confidence to continue defending their *Damgah* tradition as well. The objective was to train younger *damgah* keepers to assist in much-needed scientific monitoring in the area, records resulting in numerous – though amateurish – records from all the *Damgahs* such as variation in numbers of waterfowl in one *dooma* at Ezbaran, as observed during the workshops between October 2004 (22,251) and February 2005 (63,408) (also see Figure 9). In order to achieve the aims of this MCCA/MAWD (Mazandaran Artificial Wetland Damgah)–Finland project, the necessary community relations were built in the process of working with the *damgah*-keeping villagers during the previous MCCA / SGP (GEF Small Grants Programme) / GEF (Global Environment Facility) / UNDP (United Nations Development Programme) community-based project (2000–2002). It was chosen as the first one supported by the SGP programme at the time. One aim of these projects was to solve some of the problems common to all *Damgahs* of the three communities. The representatives of these villages, previously known for their disruptive relations, got together in meetings, forming a common cooperative to help find solutions to mutual *Damgah*-keeping difficulties.

Women’s workshops were also part of these MCCA projects to help women gain some income by producing handicrafts for tourism. This drew the

women – many for the first time – out of their homes and into different NGO meetings. Soon, they were teaming up to have exhibitions, and showing and selling their products. Some handicrafts, such as carpets, were taken to Finland to be exhibited. Some were sold at different international occasions in Tehran.

Many of the efforts and examinations of the social effects of all these MCCA projects have been sustained over the past two decades and are now a norm. Within this project, community participation also involved schoolgirls in a couple of painting workshops; their best paintings were used to illustrate a Siberian crane booklet, published by the project and distributed mostly to local schools.

The number of environmental NGOs in Iran has been growing recently, and they have become active in Mazandaran, one of the richest provinces in terms of natural resources in Iran. The help of local NGOs is needed in solving the environmental challenges linked to the survival of the *Damgah* system. The aims of the NGOs in the area are usually based on eco-friendly attitudes varying from trash to birds. Moreover, mostly led by young, college-educated people, they have higher managerial capacities to implement projects. However, effective cooperation from the side of the many universities in the region is still rare in this rural environment, where the adequacy of livelihoods is the main concern. Besides, these *Damgahs* have traditionally operated on the community participation principle and will want to decide among themselves how to achieve improvements by actions inside the local area instead of being directed from the outside.

Discussion: *Damgah*–Rice Fields Link

The *Damgah* system is reliant on the existence of rice fields, areas on which it is traditionally built as a kind of subsidiary system. The *Damgah* is a secondary livelihood based on the primary one and dependent on the rice fields, which face socioeconomic problems. Thus, threats to the existence of rice fields are essentially threats to the existence of *damgahs*.

The stance of rice farmers, who are critical of governmental agricultural policies for not supporting them enough financially, should not be ignored. The key issues at stake are the low prices paid to farmers for their rice and the lack of other government support to counteract the pressure of selling their land to builders of villas or other developers. This is no hollow threat, as the rice-farming areas with their mild climate lie in the region of the Caspian Sea littoral, which is rapidly becoming the ‘gold coast’ or ‘riviera’ of Iran. Considering the high quality of rice Iranians prefer to cheaper imported brands, even consumers should be willing to pay more for this precious crop.

The government has not been giving permission to convert farmland for garden or home building as legislated recently. This may give fresh hope for the future survival of the *Damgah*, but ordinances declared with good intentions

are often shown to be hard to implement. The DOE prefers to refrain from direct interference with *damgah* keepers.

The long history of the *Damgah* has gained recognition as a respectable and worthwhile traditional social institution. But to succeed in making this practice sustainable, all the unsustainable, illegal practices that have rampantly spread from the *'ab-bandans* must be eliminated. Because the basic reason for building the *damgahs* is and has been trapping wildfowl, it is problematic trying to convert local people to make the *Damgah* more of a 'sanctuary' for migratory waterbirds to protect them. In other words, people should stop the exploitation of their natural resources. As this artificial wetland is used primarily for a second livelihood, helping migratory birds is a secondary consideration for the rice farmers/*damgah* keepers, if even that. To succeed in persuading them to reduce trapping and refrain from any illegal practices, clearly economic incentives together with strict laws are needed.

Special attention should be paid to applying legal restrictions to include the numerous *'ab-bandans*, where no chance is left for survival of any waterbirds. In fact, the best solution would be to convert the *'ab-bandans* to *damgahs*, but with controls for sustainability. Thereby, comparatively safer roosting and stopover sites would be created in abundance, better benefitting both people and wildlife than is the case today. Presently, misinformation is among the factors endangering the *Damgah*, as they are being confused with *'ab-bandans*.

There are also misunderstandings between the FDK community and the environmental authorities and other stakeholders regarding the priorities for preservation of the *damgahs*. While the authorities try to stop illegal practices, they also become involved in decisions over how to manage the *Damgahs*. This is in conflict with the traditional way of managing the *Damgahs* by community control, that is where each *Damgah* makes their own decisions. This local conflict of human interests bypasses the needs of migratory birds, considered internationally to be the main stakeholders, while the voices of conservationists are also weak. These facts on the ground reflect the seriousness of the threats to the *Damgah* tradition.

The lack of socio-economic instruments to deal with the general problems of the *Damgahs*, referred to earlier, allowed the conditions in FDK to deteriorate continually, until in 2017 they reached a stand-off between the *Damgah* community and the government/DOE, a kind of a situation that is hard to resolve. In the meantime, the key issue of protection of the migratory birds has been almost forgotten, although the lonely Siberian crane has reached such fame and affection among the people to allow it to live up to its name, Hope.

In the short term, more immediate and continuous action to change peoples' attitudes towards wildlife via the media should be taken, while children's environmental education is a long-term process. Programmes on conservation in schools to prepare the way for a love of nature are fundamental, although their official implementation is slow and has sadly come too late. However late it may be, as a last hope to enhance our aims of preserving local migratory

bird habitats via *Damgahs*, we at the MCCA have begun cooperation with the local Children's Science Museum in Babol, joining in this museum's already well-established and impressive work in educating children through science by interactive methods.

In terms of human versus animal relations, we are here referring to interactions between humanity and wild waterfowl in a semi-natural setting of the *Damgah*, where humans have been the dominant factor as long as villagers' memories carry. The future of FDK as a migratory bird 'refuge' depends mainly on economic support for all the rice farmers and thus the *damgah* keepers. Such agricultural policy should be a priority in order to combat the threat of the disappearance of this artificial wildfowl wetland, which depends on the survival of the rice fields. Otherwise, this environmentally important International Ramsar Wetland site will succumb to failure of its inherited capacity to perform, to remain viable as a CCA system. Urgent national actions are needed, besides more effective international mechanisms (Stuart 2007).

Conclusion

The objectives of the MCCA projects have intentionally been to focus mainly on the ecological importance of the *Damgah*. However, they were pursued in a complex rural-cultural environment with the cooperation of the communities. Their results and impact, therefore, depended on psychosocial elements, involving changes not only in an environmental sense but also regarding human attitudes, shown in their social relations.

These perceived changes in the communities' interaction may be considered side effects of processes if also viewed from an anthropological perspective. Some changes were locally historical firsts, especially those related to the communities' mutual relations and concerning women's position were significant, as both aspects touched centuries long cultural modes. No doubt, there has been some natural 'slipping back'; after all, the national and promising international projects were over about a decade ago. The impacts may not have been fundamental in either an ecological or a sociocultural sense, as their duration cannot be determined yet in this context.

Nevertheless, it became evident when international modes of action were introduced as part of the SCWP project (Edwards 2012), there seemed locally to be unexpectedly little resistance to accepting association with foreigners or other multicultural people from other cultures, who often lead NGOs. This actually reflects a natural responsiveness that is felt as surprisingly friendly by most foreign visitors to Iran. It is this kind of responsiveness to new influences that is the fundamental attitude – the key factor attested to the role of the change agent, which an NGO usually is – in determining success or failure. If the essential, mutually responsive, interactive attitude among the players of

change is not well understood, namely that in the ‘dynamics of development between developed and developing countries’, the role of the change agent is one of responsibility (Vuosaloin 1974). Psychosocial characteristics are the inherent objective element in the long term, where the results are seen in terms of the tools implemented in the often painful process of change. Thus, in the case of failure, the blame may not be attributed to any single element or characteristics of the target community.

In any case, fundamental impacts of the projected aims of any community project, such as respect for and preservation of nature, will not show until time allows change to get rooted or not inside the community.

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Notes

1. In this article, the capitalised Damgah refers to the traditional agroecosystem, while the lowercase damgah (or doomah) is used for the multiple units for trapping in the Damgah system.
2. Encyclopaedia Britannica Online, s.v. 'Māzandarān', published 14 February 2007, <https://www.britannica.com/place/Mazandaran>.
3. Quotes of Benjamin and Morgan were from books owned by the researcher Kiumars Mostofi (deceased), now unavailable, but published in Vuosalo-Tavakoli (2003).
4. Encyclopaedia Iranica, s.v. 'Nāder Shah', last updated 15 August 2006.
5. Encyclopaedia Iranica, s.v. 'Bereng "Rice"', last updated 15 December 1989.

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