

Invasive Alien Species Management in the Kingdom of Bahrain

Supreme Council for Environment

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Introduction

As a small island state, the Kingdom of Bahrain, is particularly vulnerable to impacts of invasive alien species; consequently Bahrain has witnessed a rise in the number of invasive species as well as increase in the populations of existing species. At the national level, steps have been taken to help combat the impacts of these species, through both legislation and management actions.

1. Invasive Species in Bahrain

Although there is no comprehensive list of invasive alien species in Bahrain there are several species infamous for their negative direct and indirect socio-economic impacts in Bahrain (Table 1). Among the most notable are the house crow (*Corvus splendens*), the mynah (*Acridotheres tristis*) and the red palm weevil (*Rhynchophorus ferrugineus*) (Khamis, 2010). Although the number of House Crows has been reduced through culling, they can still be seen in agricultural and residential areas where they are considered to be a nuisance to the public. The number of mynah birds continues to rise steadily. One of the most devastating invasive species is the red palm weevil which continues to increase in number and expand its causing severe damage date palm plantations.

Table 1. Significant invasive species in the Kingdom of Bahrain and their impacts (Fourth National Report, 2011).

No.	Species	Year	Impacts
1	House Crow <i>Corvus splendens</i>	1961	Prey on chicks and eggs of local birds, causing disturbed the local population, in addition to the health risks of contaminating swimming pools.
2	Common myna <i>Acridotheres tristis</i>	1977	Prey on chicks and eggs of local birds; recorded case in 2007 where a citizen was attacked and his eyes punctured by the birds.
3	Red vented bulbul <i>Pycnonotus cafer</i>	1986	Recorded cases of interbreeding between <i>P. cafer</i> and the white-cheeked bulbul (<i>Pycnonotus leucogenys</i>) resulting in hybrid offspring.

4	Conocarpus tree <i>Conocarpus erectus</i>	1990's	Plant roots have caused severe damage to water pipes and sewage pipes in residential areas, and caused cracks in foundations and floors of some buildings
5	Red Palm Weevil <i>Rhynchophorus ferrugineus</i>	1995	Causing economic losses as a result of damage to date palms, especially in the north-western areas of the island of Bahrain

2. Laws and Legislation

The Kingdom of Bahrain has issued several legislative laws and decrees in support of reducing the entry of invasive species into the country. Similarly Bahrain is party to several international conventions that both directly and indirectly support the management of invasive alien species.

Table 2. List of laws and legislation in place to help reduce the impact of invasive alien species (Al Wasmi & Abdul Kareem, 2013).

No.	Laws and Legislation
1	Law No. 5 (2003) On the approval of an agricultural quarantine procedure in GCC states.
2	Law No. 8 (2003) On the approval of veterinary quarantine procedures in GCC states.
3	Municipalities and Agricultural Affairs Ministerial Decree No. 4 (2004) Concerning the ban on the admittance of palm dates and some types of palm trees from other countries affected by palm tree pests.
4	Municipalities and Agricultural Affairs Ministerial Decree No. 7 (2004) Issuing regulations for veterinary quarantine in GCC states.

5	Internal regulation concerning the import of predatory animals unless accompanied by a statement from the Ministry of the Interior and Agriculture Affairs.
6	Law No. 24 (2012) Approval of the laws and procedures of seeds and seedlings within in the GCC.

Table 3. A list of International Conventions signed and/or ratified by the Kingdom of Bahrain (Al Wasmi & Abdul Kareem, 2013).

No.	Legislation
1	Decree No. 18 (1996) Ratification of the Convention on Biological Diversity
2	Decree No. 9 (2002) Ratification of the agreement on the protection of wildlife and natural habitats in the GCC.
3	Law No. 48 (2009) Ratification of the International Convention for the International Plant Protection Prevention Convention by the Food and Agriculture Organization (FAO) Conference of the United Nations during the twenty-ninth session in November 1997
4	Law No. (2011) To approve the accession to the Cartagena Protocol on Biosafety to the Convention on Biological Diversity
5	Law No. 27 (2012) to approve the accession of the Kingdom of Bahrain to the Convention on International Trade in Endangered Species (CITES) of Fauna and Flora.

3. Management at the National Level

Table 4. Efforts made at the national level to combat invasive species as well as an estimate of their effectiveness (Fifth National Report, 2015).

Efforts	Status and Trends
<ul style="list-style-type: none"> • Monitoring of borders and exit points to ensure detection of invasive species entry into the country (especially poisonous and predatory species). • Continuation of the House Crow (<i>C. splendens</i>) monitoring and management program in residential and agricultural areas. • Increasing the efforts of the red palm weevil (<i>R. ferrugineus</i>) pest management program executed by the Directorate of Agricultural Affairs and Marine Resources following legislative, mechanical, cultural chemical and behaviour control which includes efforts related to monitoring, surveying, pest control and treatment. Examples of the most prominent efforts implemented during 2011-2014 include (Directorate of Agricultural Affairs and Marine Resources, 2014): <ul style="list-style-type: none"> ○ The survey of 1815 farms and analysis of 738,062 palm trees to ensure that they are not infected by the red weevil. ○ Preparation of a detailed map illustrating the geographic spread of red weevil infections in Bahrain. ○ The treatment of 14,364 infected trees (either through pest control or removal – refer to Chapter 1, Section 5). 	<ul style="list-style-type: none"> • Decrease in House Crows numbers despite its presence in many residential neighbourhoods and agricultural lands. • Increase in the number and geographical extent of the common myna bird (<i>Acriclotheres tristis</i>). • The increase in the geographical extent of the red palm weevil (<i>R. ferrugineus</i>) and its economic, environmental impacts in the northern and western regions of the northern governate. • Monitoring of a total of 61 agricultural pest species that impact date trees in the Kingdom of Bahrain (Directorate of Agricultural Affairs and Marine Resources, 2014).

<ul style="list-style-type: none">○ The distribution of 3,972 free red palm weevil pheromone traps and 12,023 pheromones on farmers (Figures 3-2).○ Conducting two workshops on palm tree services and mitigating the red palm weevil pest.● Implementation of a project in collaboration with the International Research Center that aims to create an inventory for palm pests which includes agricultural insects and spiders whilst dividing them based on their economic importance in dry areas, in collaboration with the International Centre for Agricultural Research in Dry Areas (ICARDA), Oman.	
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References

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