

Scientific name	<i>Corvus splendens</i>
Common name	Indian house crow
Broad group	Vertebrate
Number of and countries wherein the species is currently established	1: NL
Risk Assessment Method	GB NNRA
Links	<a href="http://www.nonnativespecies.org/downloadDocument.cfm?id=49">http://www.nonnativespecies.org/downloadDocument.cfm?id=49</a>
1. Description (Taxonomy, invasion history, distribution range (native and introduced), geographic scope, socio-economic benefits)	<p>Socio-economic benefits: House Crows were deliberately introduced into a number of countries for a variety of purposes, including biocontrol (e.g. caterpillars in Malaysia (Cramp <i>et al.</i>, 1980); livestock ticks in Oman (Ryall, 1994)) and to clean up refuse (e.g. Zanzibar (Ryall, 1994)). The species probably reduces the amount of human refuse in areas where waste management is inadequate, therefore outcompeting rats (CABI ISC, 2013). However, within Europe the opportunities for these purposes are lacking.</p> <p>In India the species is recognised as beneficial because it reduces numbers of invertebrate agricultural pests (Chakravarthy, 1988). Again, within Europe potential positive impact with this respect is unlikely. As a newcomer to the avifauna of Europe, House crow may be perceived as an attraction by birdwatchers and its exotic origin may be appealing also to the general public (Ryall, 2002, Ryall, 2003).</p>
6. Can broadly assess environmental impact with respect to ecosystem services	<p>Provisioning services: A number of crops and livestock present in the EU have been impacted elsewhere. In India, the House Crow is reported to raid crops such as wheat and maize, and to cause severe damage to fruit in orchards (Long, 1981), and to fields of oats and maize (Cramp <i>et al.</i>, 1980). Other crops damaged in India are ripening sunflower (Dhindsa <i>et al.</i>, 1991) and almonds (Bhardwaj, 1991). In Pakistan, the House Crow is regarded as a serious pest, consuming maize, sunflower and harvested wheat (Khan, 2003). In Mauritius, production of free range poultry was affected by predation on eggs and chicks (Puttoo &amp; Archer, 2004). In France, carrion crows <i>Corvus corone</i> are one of a number of predators recorded as killing chickens being reared at free-range poultry units (Stahl <i>et al.</i>, 2002). Indian House Crows would represent an additional predation risk. Impacts on crops and livestock, however, will be mitigated through</p>

	<p>the species mostly residing in urban/semi-urban areas rather than rural. Throughout its range, the House Crow feeds primarily on human refuse, stolen scraps and road kills (Ryall, 1992).</p> <p>Regulating services: Further impacts are associated with public health issues arising from the House Crow’s communal roosting and scavenging behaviours.</p> <p>Disease regulation - Indian House Crows are regarded as a public nuisance in a number of countries. The birds roost communally and can involve thousands of individuals (Cramp <i>et al.</i>, 1980). Such large roosts in urban areas create high levels of noise pollution and faecal contamination (Brook <i>et al.</i>, 2003, Jennings, 1992). Together with scavenging from refuse tips, streets and from human residences these behaviours present risks to public health. House Crows have been shown to carry organisms detrimental to human health, including <i>Salmonella</i>, <i>Escherichia coli</i> and <i>Campylobacter</i> (Ganapathy <i>et al.</i>, 2007, Jennings, 1992), and that of livestock, including Newcastle Disease (Roy <i>et al.</i>, 1998). The species is also a potential reservoir for West Nile Virus and avian influenza (Nyári <i>et al.</i>, 2006).</p>
<p>8. Includes status (threatened or protected) of species or habitat under threat</p>	<p>The Indian House Crow is a voracious predator of eggs, chicks and adults of other bird species (Long, 1981, Puttoo &amp; Archer, 2004, Yap &amp; Sodhi, 2004); causes displacement of indigenous bird species through competition and aggression (Brook <i>et al.</i>, 2003, Cramp <i>et al.</i>, 1980, Long, 1981, Puttoo &amp; Archer, 2004).</p> <p>In its native and introduced range it is closely associated with people, taking advantage of scavenging opportunities provided by discarded food items and refuse dumps almost exclusively along coastal strips (Nyári <i>et al.</i>, 2006). Therefore, the protected habitats and/or species that could be impacted are in urban, semi-urban and peri-urban habitats with an emphasis on coastal areas.</p> <p>Impact on four red listed species (from GISD):</p> <p><i>Falco punctatus</i> VU</p> <p><i>Nesoenas mayeri</i> EN</p> <p><i>Otus pembraensis</i> VU</p> <p><i>Treron pembraensis</i> VU</p>

<p>9. Includes possible effects of climate change in the foreseeable future</p>	<p>The distribution of this species may be in the process of shifting because of the current global shifts in climates, which would broaden the species distribution at the poleward limits of its current distribution (Nyári <i>et al.</i>, 2006). Persistence of the small population at Hoek van Holland in the Netherlands is better explained by the degree of human development. This population is able to withstand winter temperatures down to -8°C thanks to human subsidy and acceptance of the local community (Ryall, 2003).</p> <p>High temperatures may negatively affect the parasite <i>Toxoplasma gondii</i> that affects House crow (Salant <i>et al.</i>, 2013). Releasing the pressure from this parasite may facilitate further spread of Indian House crow.</p>
<p>11. Documents information sources</p>	<p><b>Bhardwaj S. 1991.</b> Indian house crow damage to almond in Himachal Pradesh, India.</p> <p><b>Brook BW, Sodhi NS, Soh MC, Lim HC. 2003.</b> Abundance and projected control of invasive house crows in Singapore. <i>The Journal of wildlife management</i>: 808-817.</p> <p><b>CABI ISC. 2013.</b> <i>Corvus splendens</i>. Datasheet. Accessed on 15.12.2014 <a href="http://www.cabi.org/isc/datasheet/15463">http://www.cabi.org/isc/datasheet/15463</a>.</p> <p><b>Chakravarthy A. 1988.</b> Bird predators of pod borers of field bean (<i>Lablab niger</i> Medick). <i>International Journal of Pest Management</i> <b>34</b>: 395-398.</p> <p><b>Cramp S, Perrins CM, Brooks DJ. 1980.</b> <i>Handbook of the birds of Europe, the Middle East, and North Africa: the birds of the western Palearctic. Vol. 8, Crows to finches.</i> Oxford University Press.</p> <p><b>Dhindsa MS, Sandhu P, Saini HK, Toor H. 1991.</b> House crow damage to sprouting sunflower. <i>International Journal of Pest Management</i> <b>37</b>: 179-181.</p> <p><b>Ganapathy K, Saleha A, Jaganathan M, Tan C, Chong C, Tang S, Ideris A, Dare CM, Bradbury JM. 2007.</b> Survey of <i>campylobacter</i>, <i>salmonella</i> and <i>mycoplasmas</i> in house crows (<i>Corvus splendens</i>) in Malaysia. <i>The Veterinary Record</i> <b>160</b>: 622-624.</p> <p><b>Jennings M. 1992.</b> The House Crow <i>Corvus splendens</i> in Aden (Yemen) and an attempt at its control. <i>Sandgrouse</i> <b>14</b>: 27-33.</p> <p><b>Khan HA. 2003.</b> Damage patterns of house crow (<i>Corvus splendens</i>) on some food crops in Faisalabad. <i>Pakistan Journal of Biological Sciences</i> <b>6</b>: 188-190.</p> <p><b>Long JL. 1981.</b> <i>Introduced birds of the world</i>: Universe Books, New York.</p>

	<p><b>Nyári Á, Ryall C, Townsend Peterson A. 2006.</b> Global invasive potential of the house crow <i>Corvus splendens</i> based on ecological niche modelling. <i>Journal of Avian Biology</i> <b>37</b>: 306-311.</p> <p><b>Puttoo M, Archer T. 2004.</b> Control and/or eradication of indian crows (<i>Corvus splendens</i>) in Mauritius. <i>REVUE AGRICOLE ET SUCRIERE DE L ILE MAURICE</i> <b>83</b>: 77.</p> <p><b>Roy P, Venugopalan A, Manvell R. 1998.</b> Isolation of Newcastle disease virus from an Indian house crow. <i>Tropical animal health and production</i> <b>30</b>: 177-178.</p> <p><b>Ryall C. 1992.</b> Predation and harassment of native bird species by the Indian house crow <i>Corvus splendens</i> in Mombasa, Kenya. <i>Scopus</i> <b>16</b>: 1-8.</p> <p><b>Ryall C. 1994.</b> Recent extensions of range in the house crow <i>Corvus splendens</i>. <i>Bull. Brit. Orn. Club</i> <b>114</b>: 90-100.</p> <p><b>Ryall C. 2002.</b> Further records of range extension in the House Crow <i>Corvus splendens</i>. <i>BULLETIN-BRITISH ORNITHOLOGISTS CLUB</i> <b>122</b>: 231-240.</p> <p><b>Ryall C. 2003.</b> Notes on ecology and behaviour of house crows at Hoek van Holland. <i>Dutch Birding</i> <b>25</b>: 167-172.</p> <p><b>Salant H, Hamburger J, King R, Baneth G. 2013.</b> <i>Toxoplasma gondii</i> prevalence in Israeli crows and Griffon vultures. <i>Veterinary parasitology</i> <b>191</b>: 23-28.</p> <p><b>Stahl P, Vandell J, Ruetten S, Coat L, Coat Y, Balestra L. 2002.</b> Factors affecting lynx predation on sheep in the French Jura. <i>Journal of Applied Ecology</i> <b>39</b>: 204-216.</p> <p><b>Yap CA, Sodhi NS. 2004.</b> Southeast Asian invasive birds: ecology, impact and management. <i>Ornithological Science</i> <b>3</b>: 57-67.</p>
Main experts	Wojciech Solarz Wolfgang Rabitsch
Other contributing experts	Olaf Booy Belinda Gallardo Piero Genovesi
Notes	In how many EU member states has this species been recorded? List them. 3 - IE, NL, PL

	<p>In how many EU member states has this species currently established populations? List them. 1 – NL</p> <p>In how many EU member states has this species shown signs of invasiveness? List them. 1 – NL</p> <p>In which EU Biogeographic areas could this species establish? Most likely the Mediterranean and Atlantic Coast, but possible in other regions except alpine and boreal.</p> <p>In how many EU Member States could this species establish in the future [given current climate] (including those where it is already established)? List them. Most likely the Mediterranean and Atlantic Coast, but possible in other regions except alpine and boreal.</p> <p>In how many EU member states could this species become invasive in the future [given current climate] (where it is not already established)? List them. Most likely to become invasive in Mediterranean and Black Sea (i.e. Spain, Portugal, Italy, Greece, France, Republic of Cyprus, Croatia, Malta, Bulgaria, Romania)</p> <p>Potential to establish in: Austria, Belgium, Czech Republic, Denmark, Germany, Hungary, Ireland, Luxembourg, Netherlands, Poland, Slovakia, Slovenia and the UK. Unlikely to establish in: Sweden, Estonia, Finland, Latvia, Lithuania.</p>
Outcome	Compliant