

Curbing the global threat of biological invasions

Helen Roy and many, many others





Kelly Martinou and team







Laboratory of Vector Ecology and Applied Entomology

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Ms Katerina C. Athanasiou MSc student
Mr Evangelos Koutsoukos PhD student
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Mr Andreas Josephides Computer
scientist















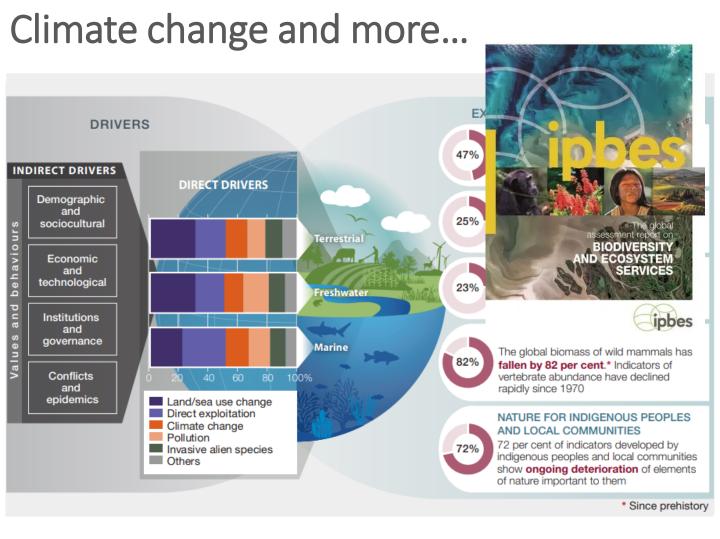






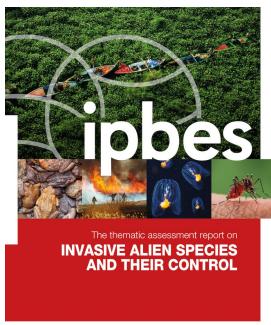


















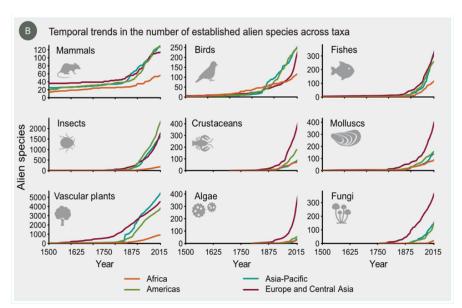
Alien species are animals, plants, and other organisms that have been introduced by human activities to new regions

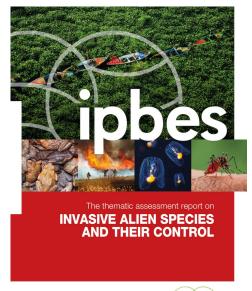
Invasive alien species are a subset of alien species, known to have established and spread with negative impacts on nature

Invasive alien species are one of the 5 major drivers of biodiversity loss



Invasive alien species are a major and growing threat to biodiversity and ecosystems









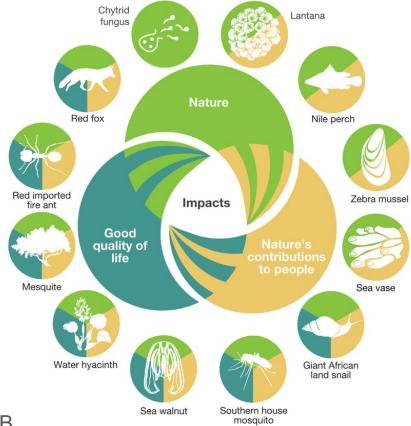


60% of global species extinctions have been caused, solely or alongside other drivers, by invasive alien species

>\$423 billion*

is the estimated **global annual costs** of
biological invasions in
2019

* £2 billion is the estimated annual cost to GB



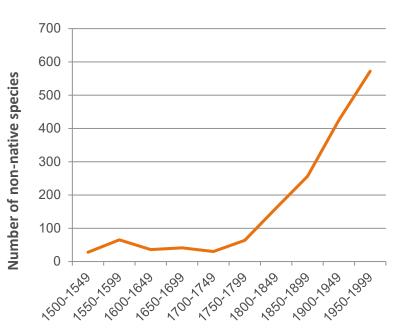




Biological invasions in Britain

About **2000** established nonnative species:

1562 plants - 127 (8%) considered invasive 542 animals - 198 (37%) considered invasive



Approximately 14 new non-native species establish in Britain every year









People at the heart of the problem...

If things remain unchanged, by

2050

total number of alien species globally is expected to be about

one-third higher



... People at the heart of the solution

Prevention
Early detection and rapid response
Containment and control







Kunming-Montreal

GLOBAL BIODIVERSITY FRAMEWORK



Target 6

Reduce the Introduction of Invasive Alien Species by 50% and Minimize Their Impact





GB Non-Native Species Information

Portal

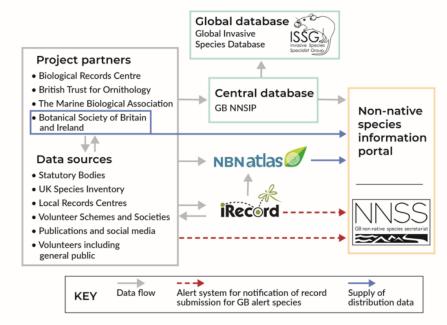


Figure 8 Diagram to show the structure and data flow of the NNSIP, and how it interacts with the wider community engaged in monitoring and surveillance of NNS. *Source: UK Centre for Ecology and Hydrology.*

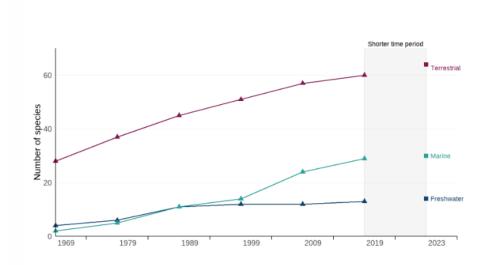








Figure 1: Number of invasive non-native species established in or along 10% or more of Great Britain's land area or coastline, 1969 to 2023

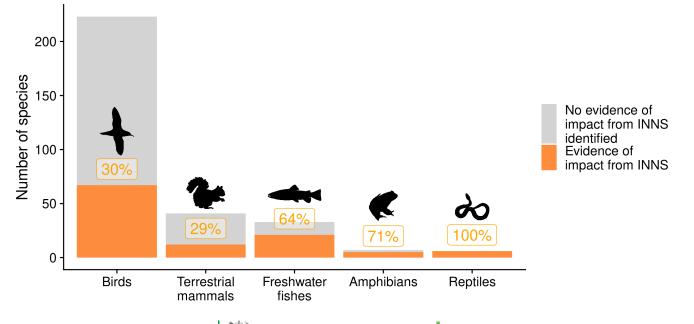


Source: Botanical Society of Britain & Ireland; British Trust for Ornithology; UK Centre for Ecology & Hydrology; Marine Biological Association; National Biodiversity Network



Impact of INNS on native species and habitats across **Great Britain**

Rob Cooke and Simeon Wilton











University of Exeter Cornwall

Biological invasions in Greece

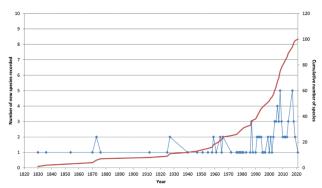


Figure 2. Number of new invasive alien species reported during the 1830–2021 period from Greece (blue) and cumulative number of species (red).

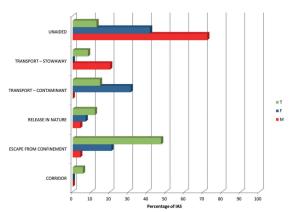


Figure 4. CBD principal introduction pathways for invasive species of Greece per environment. T: terrestrial; F: freshwater; and M: marine taxa.

126 species:

terrestrial and freshwater plants (32 species) terrestrial invertebrates (14 species) terrestrial vertebrates (28 species) freshwater fishes and invertebrates (30 species) marine species (22 species)

> NeoBiota 86: 45–79 (2023) doi: 10.3897/neobiota.86.101778 https://neobiota.pensoft.net





HELLAS-ALIENS. The invasive alien species of Greece: time trends, origin and pathways

Margarita Arianoutsou¹, Chloe Adamopoulou², Pavlos Andriopoulos¹, Ioannis Bazos¹, Anastasia Christopoulou^{1,3}, Alexandros Galanidis^{1,4}, Eleni Kalogianni⁵, Paraskevi K. Karachle⁵, Yannis Kokkoris¹, Angeliki F. Martinou⁶, Argyro Zenetos⁵, Andreas Zikos¹

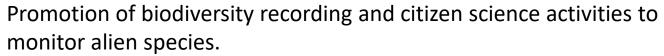
1 Department of Ecology and Systematics, Faculty of Biology, National and Kapodistrian University of Athens, Athens, Greece 2 Department of Zoology — Marine Biology, Faculty of Biology, National and Kapodistrian University of Athens, Athens, Greece 3 Centre for Research and Conservation of Cultural Heritage, Faculty of Fine Arts, Nicolaus Copernicus University, Torusi, Poland 4 Department of Environment, Biodiversity Conservation Laboratory, University of the Aegean, Mytilene, Greece 5 Institute of Marine Biological Resources and Inland Waters, Hellenic Centre for Marine Research, Athens, Greece 6 Climate and Atmosphere Research Centre / CARE-C, The Cyprus Institute, Athalassa Campus, 20 Konstantinou Kavafi Street, 2121 Aglantzia, Nicosia, Cyprus

Biological invasions in Cyprus

CyDAS \rightarrow species profiles for 1228 alien species:

- Tracheophyta (571 species)
- Arthropoda (400 species)
- Chordata (104 species)
- Mollusca (66 species)

Updates on first record year, habitats and more



New records of alien species for the island (particularly insects)



CHECKLIST DATASET | REGISTERED OCTOBER 12, 2018 Global Register of Introduced and Invasive Species - Cyprus

Martinou A . Pescott O . Michailidis N . Zenetos A . Wong L J . Pagad S

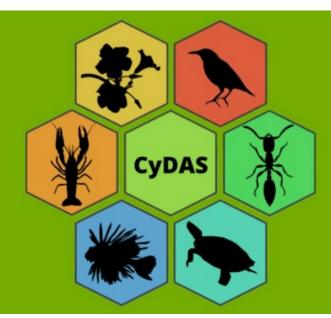












The Cyprus Database of Alien Species

Jakovos Demetriou
Biologist, MSc, PhD student
Darwin Fellow















Project Members Resources - Contact us Log in Explore Akrotin

Zelus renardii

Kolepati 1857

Arthropoda « Hemiptera » Reduvildae » Zelus renardii

Common name (English) leaf hopper assassin bug

Terrestrial habitat

X23 Non-domestic gardens (large)

X24 Domestic gardens (urban)





Habitat detail

Observed in house garden in Limassol (https://www.inaturalist.org/observations/149674689)

Unknown.

Establishment status detail

First detection year

Online resource

https://www.itis.gov/servies/SingleRpt/SingleRpt7search_topic=TSN&search_value=...

John E, Kolokotronis D (2023) First record of Zelus renard/ Kolenati, 1857 (Heteroptera: Reduvidae: Harpactorinae) fo http://dx.doi.org/10.31184/M00138908.1591.4177

Zelus renardii

Kolenati, 1857

Arthropoda » Hemiptera » Reduviidae » Zelus renardii

Common name (English)

leaf hopper assassin bug

Terrestrial habitat

X23 Non-domestic gardens (large)

X24 Domestic gardens (urban)

Habitat detail

Recreational pathway created parallel with the Pediaios River that links southern Nicosia with Anthoupoli (John and Kolokotronis 2023).

Observed in house garden in Limassol (https://www.inaturalist.org/observations/148674689).

Establishment status

Unknown

Establishment status detail

Alien.

First detection year

Online resource

https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=...

References

John E, Kolokotronis D (2023) First record of Zelus renardii Kolenati, 1857 (Heteroptera: Reduviidae: Harpactorinae) for Cyprus. Entomologist's Monthly Magazine 159: 59-65. http://dx.doi.org/10.31184/M00138908.1591.4177

Engaging people in monitoring and detection





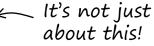


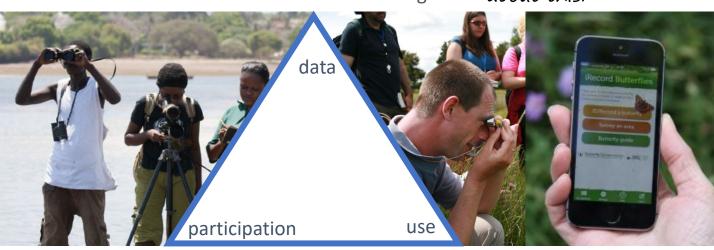




A role for citizen science ...

Science
Research + monitoring





People

Informal learning/ Wellbeing/empowerment

Society/Policy

Informing action

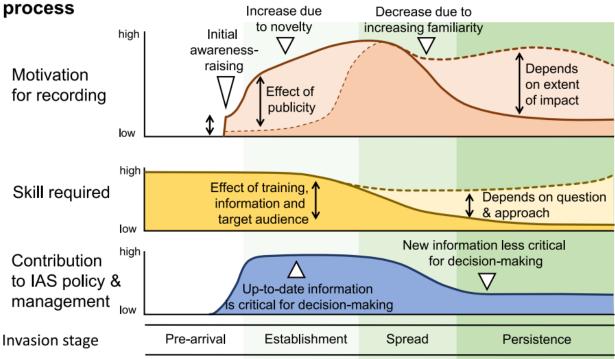
Justice, equality and inclusion



Pocock et al. (2017) The diversity and evolution of ecological and environmental citizen science. PLoS ONE 12: e0172579



C Citizen science attributes are likely to vary across the invasion



iScience

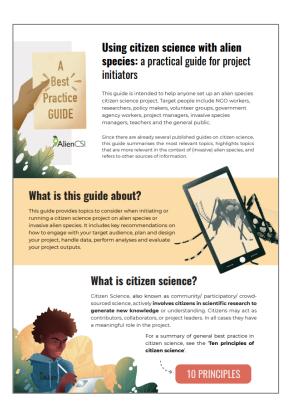




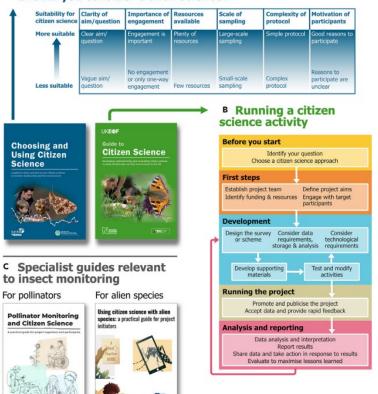
Citizen science is a vital partnership for invasive alien species management and research







A Should you consider citizen science?







UK Ladybird Survey

Resources



Home (main website)

Tweets by @UKLadybirds

B Helen Roy Retweeted

AFEntomology

@AFEntomology

forests, most talks focusing on associational resistance as a means of perhaps - reducing the impact of invasive

Embed

Excellent session on alien insects in

(and native) insect pests #ICE2022

View on Twitter

Log in



UK Ladybird Survey

Beetle recording



Photo gallery

Contacts

The UK Ladybird Survey aims to encourage the recording of all species of ladybird found within the UK.

Ladybirds belong to the scientific family Coccinellidae. In Britain, some 46 species belong to this family, although only 26 of these are recognisable as ladybirds.

On this website you will find lots of information to help you find and identify species, and online forms so that you can record your observations.

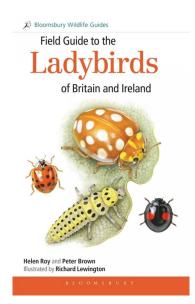
Use the links in the menu at the side of this page to find out more about ladybirds.

The Coleopterist

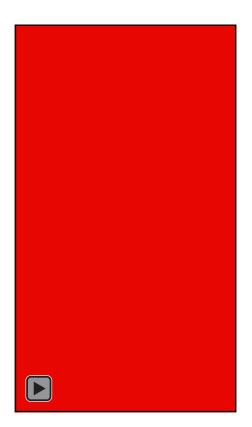
The invasion of the harlequin ladybird (Harmonia axyridis) threatens our native ladybirds and other species. We have been using the records that you send to the UK Ladybird Survey to explore the ways in which native ladybirds are responding to the harlequin ladybird. If you want to know more about this species in particular see our summary: A decade of recording harlequin ladybirds in the UK.







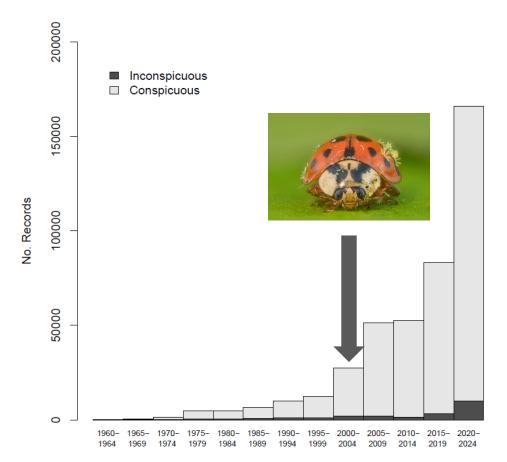
Tracking spread of harlequin ladybirds

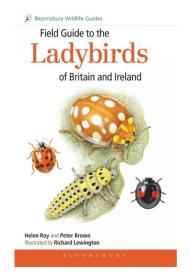










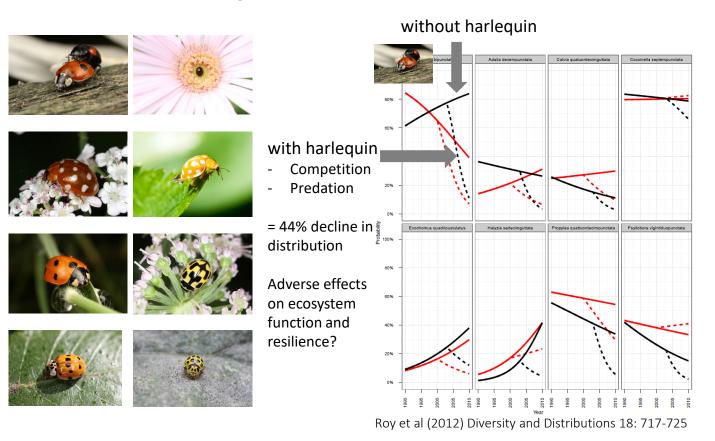


Time Period





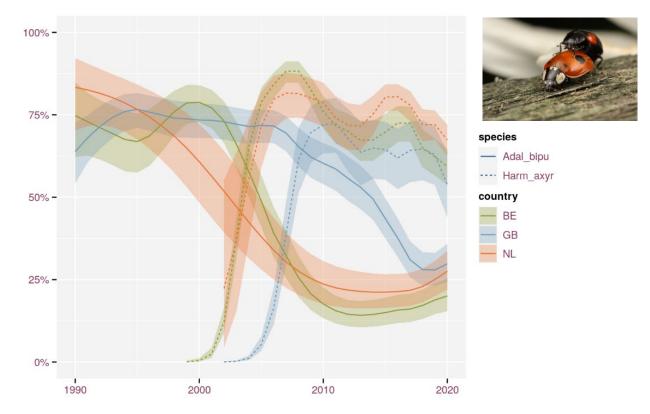
Declines in ladybirds







Sustained decline of Adalia bipunctata

















INVITEDREVIEW

Ten years of invasion: *Harmonia axyridis* (Pallas) (Coleoptera: Coccinellidae) in Britain

 $H\ E\ L\ E\ N\ E\ .\ R\ O\ Y^1$ and $P\ E\ T\ E\ R\ M\ .\ J\ .\ B\ R\ O\ W\ N^2$ ¹Centre for Ecology & Hydrology, Oxfordshire, U.K. and ²Animal and Environment Research Group, Life Sciences Department, Anglia Ruskin University, Cambridge, U.K.

BioControl (2011) 56:663-679 DOI 10.1007/s10526-011-9387-1

Living with the enemy: parasites and pathogens of the ladybird *Harmonia axyridis*

Helen E. Roy · Emma Rhule · Susanne Harding · Lori-Jayne Lawson Handley · Remy L. Poland · Eric W. Riddick · Toye Steenberg

Biol Invasions (2016) 18:997–1044 DOI 10.1007/s10530-016-1077-6



INSECT INVASIONS

The harlequin ladybird, *Harmonia axyridis*: global perspectives on invasion history and ecology

Helen E. Roy · Peter M. J. Brown · Tim Adriaens · Nick Berkvens · Isabel Borges · Susana Clusella-Trullas · Richard F. Comont · Patrick De Clercq · Rene Eschen · Arnaud Estoup · Edward W. Evans · Benoit Facon · Mary M. Gardiner · Artur Gil · Audrey A. Grez · Thomas Guillemaud · Danny Haelewaters · Annette Herz · Alois Honek · Andy G. Howe · Cang Hui · William D. Hutchison · Marc Kenis · Robert L. Koch · Jan Kulfan · Lori Lawson Handley · Eric Lombaert · Antoon Loomans · John Losey · Alexander O. Lukashuk · Dirk Maes · Alexandra Magro · Katie M. Murray · Gilles San Martin · Zdenka Martinkova · Ingrid A. Minnaar · Oldřich Nedved · Marina J. Orlova-Bienkowskaja · Naoya Osawa · Wolfgang Rabitsch · Hans Peter Ravn · Gabriele Rondoni · Steph L. Rorke · Sergey K. Ryndevích · May-Guri Saethre · John J. Sloggett · Antonio Onofre Soares · Riaan Stals · Matthew C. Tinsley · Axel Vandereycken · Paul van Wielink · Sandra Viglášová · Peter Zach · Ilya A. Zakharov · Tania Zaviezo · Zilwa Zhao



Journal of Biogeography (J. Biogeogr.) (2015) 42, 575-588



Landscape and climate determine patterns of spread for all colour morphs of the alien ladybird *Harmonia axyridis*

Bethan V. Purse^{1*}, Richard Comont¹, Adam Butler², Peter M. J. Brown³, Clare Kessel⁴ and Helen E. Rov¹







Biol Invasions (2020) 22:2915–2921 https://doi.org/10.1007/s10530-020-02312-7



INVASION NOTE



Citizen science reveals the distribution of the invasive harlequin ladybird (*Harmonia axyridis* Pallas) in Argentina



2022 Accepted: 30 May 2022

DOI: 10.1111/cobi.13965

Conservation Biology

REVIEW

A roadmap for ladybird conservation and recovery





Horizon scanning: Combining the best available evidence with expert-elicitation

Global Change Biology

Global Change Biology (2014) 20, 3859-3871, doi: 10.1111/gcb.12603

Horizon scanning for invasive alien species with the potential to threaten biodiversity in Great Britain

HELEN E, ROY1, IODEY PEYTON1, DAVID C, ALDRIDGE2, TRISTAN BANTOCK3, TIM M. BLACKBURN^{4,5}, ROBERT BRITTON⁶, PAUL CLARK⁷, ELIZABETH COOK⁸. KATHARINA DEHNEN-SCHMUTZ⁹, TREVOR DINES¹⁰, MICHAEL DOBSON¹¹, FRANÇOIS EDWARDS¹, COLIN HARROWER¹, MARTIN C. HARVEY¹², DAN MINCHIN¹³, DAVID G. NOBLE14, DAVE PARROTT15, MICHAEL I. O. POCOCK1, CHRIS D. PRESTON1, SUGOTO ROY15, ANDREW SALISBURY16, KARSTEN SCHÖNROGGE1, JACK SEWELL17, RICHARD H. SHAW18, PAUL STEBBING19, ALAN J. A. STEWART20 and KEVIN J. WALKER21 ¹Centre for Ecology & Hudrology, Wallingford OX10 8BB, UK, ²Aquatic Ecology Group, Department of Zoology, University of Cambridge, Cambridge CB2 3EI, UK, 3British Bugs, 101 Crouch Hill, London N8 9RD, UK, 4Institute of Zoology, Zoological Society of London, Regent's Park, London NW1 4RY, UK, 5Centre for Invasion Biology, Department of Botany and Zoology, Stellenbosch University, Stellenbosch, South Africa, 6University of Bournemouth, Poole BII12 5BB, UK, 7 Aquatic Invertebrates Division, Devartment of Life Sciences, The Natural History Museum, Cromwell Road, London SW7 5BD, UK, 8Scottish Marine Institute, Oban, Argyll, PA37 1QA, UK, Centre for Agroecology and Food Security, Coventry University, Priory St, Coventry CVI 5FB, UK, 10 Plant Life, Uned 14, Llvs Castan, Parc Menai, Bancor LL57 4FD, UK, 11 APEM Ltd., The Technopole Centre. Midlothian EH26 OPI, UK, 12 Devartment of Environment, Earth and Ecosystems, The Oven University, Walton Hall, Milton Keynes MK7 6AA, UK, 13 Marine Organism Investigations Killaloe, Co Clare, Ireland, 14 British Trust for Ornithology, Thetford IP24 2PU, UK, 15 Animal Health and Veterinary Laboratories Agency, Sand Hutton, York YO41 1LZ, UK, 16 RHS Garden Wisley, Nr Woking, Surrey GU23 6OB, UK, 17 The Marine Biological Association of the United Kingdom, The Laboratory, Citadel Hill, Plumouth, Devon PL1 2PB, UK, 18CABI E-UK Bakeham Lane, Egham, Surrey TW20 9TY, UK, 19Centre for Environment, Fisheries and Aquaculture Science, Barrack Road, The Nothe, Weymouth, Dorset DT4 8UB, UK, 20 School of Life Sciences, University of Sussex, Falmer, Brighton BN1 9OG, UK, 21 Botanical Society of Britain and Ireland, Natural History Museum, Cromwell Road, London SW7 5BD, UK

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Received: 25 Aby 2018 | Accepted: 7 November 2018

Ook 801111/ph.14527

PRIMARY RESEARCH ARTICLE WILLEY Global Change Biology
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Developing a list of invasive alien species likely to threaten biodiversity and ecosystems in the European Union

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Helen E. Roy<sup>1</sup> ③ | Sven Bacher<sup>2</sup> ③ | Franz Essi<sup>3,4</sup> | Tim Adriaens<sup>5</sup> | David
C. Aldridge<sup>6</sup> | John D. D. Bishop<sup>7</sup> | Tim M. Blackburn<sup>8,9</sup> | Etienne Branquart<sup>10</sup> |
Juliet Brodie<sup>11</sup> ③ | Carles Carboneras<sup>12</sup> | Elizabeth J. Cottier-Cook<sup>13</sup> | Gordon
H. Copp<sup>14,15</sup> ④ | Hannah J. Dean<sup>1</sup> | Jørgen Eilenberg<sup>10</sup> ④ | Belinda Gallardo<sup>17</sup> |
Mariana Garcia<sup>18</sup> | Emili Garcia-Berthou<sup>19</sup> ④ | Piero Genovesi<sup>20</sup> | Philip E. Hulme<sup>21</sup> |
Marc Kenis<sup>22</sup> | Francis Kerckhof<sup>23</sup> | Marianne Kettunen<sup>24</sup> | Dan Minchin<sup>25</sup> |
Wolfgang Nentwig<sup>26</sup> | Ana Nietot<sup>18</sup> | Jan Pergi<sup>27</sup> ⊚ | Oliver L. Pescott<sup>1</sup> | Jodey M.
Peyton<sup>1</sup> | Cristina Preda<sup>28</sup> | Alain Roques<sup>29</sup> | Steph L. Rorke<sup>1</sup> | Riccardo Scalera<sup>18</sup> |
Stefan Schindler<sup>3</sup> | Karsten Schönrogge<sup>1</sup> | Jack Sewell<sup>7</sup> | Wojciech Solarz<sup>30</sup> | Alan J.
A. Stewart<sup>21</sup> ⊙ | Elena Tricarico<sup>22</sup> ⊚ | Sonia Vanderhoeven<sup>23</sup> | Gerard van der
Velde<sup>34,33,36</sup> | Montserrat Vilä<sup>37</sup> ⊙ | Christine A. Wood<sup>7</sup> | Argyro Zenetos<sup>38</sup> |
Wolfgang Rabitsch<sup>3</sup>
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Recence 2s March 2022 Revised: 10 October 2022 Accepted: 24 October 2022

DOI: 10.1101/cont.12028

LETTER Recence: 2s March 2022 Revised: 10 October 2022 Accepted: 24 October 2022

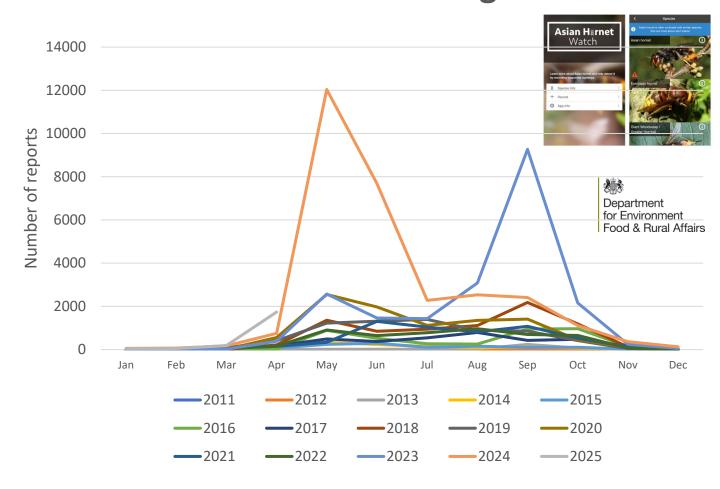
Conservation Letters

Figure 2 Accepted: 2s March 2022 Revised: 2s Marc
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Horizon scanning for potential invasive non-native species across the United Kingdom Overseas Territories



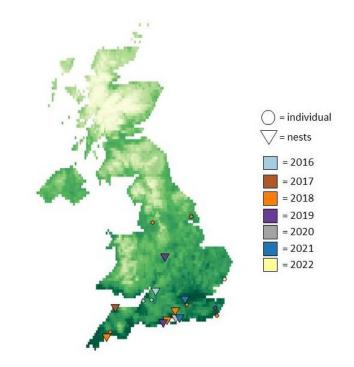
Citizen science for monitoring invasions



Yellow-legged hornet eradicated



Predicting the spread of Asian hornets



Coupling environmental suitability model with a spread model to predict the potential extent of invasion by the Asian hornet without early detection and eradication



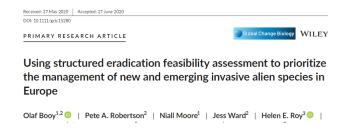
Horizon scanning informing policy and action

...prioritising species for risk assessment





...implementing monitoring and action



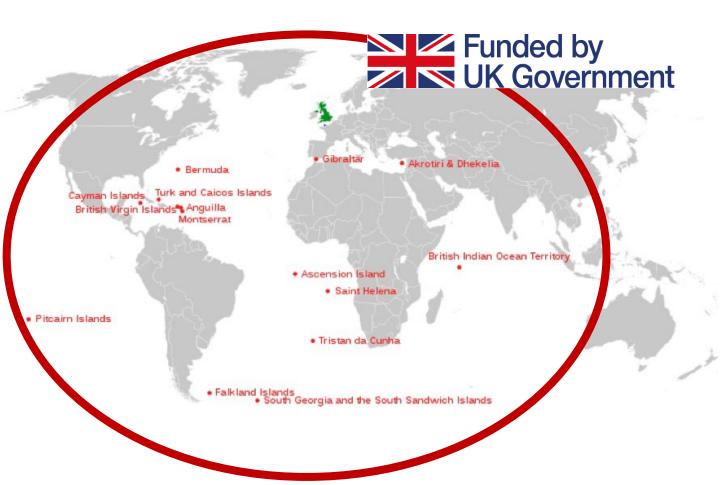


...including enhancing biosecurity





Predicting biological invasions on islands







Horizon scanning - Cyprus











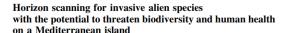
Sociobiology An international journal on social insects

RESEARCH ARTICLE - ANTS

One of the World's Worst Invasive Alien Species Wasmannia auropunctata (Hymenoptera: Formicidae) Detected in Cyprus

Biol Invasions (2019) 21:2107-2125 https://doi.org/10.1007/s10530-019-01961-7

ORIGINAL PAPER



Jodey Peyton O Angeliki F. Martinou O Oliver L. Pescott O Monica Demetriou · Tim Adrianes · Margarita Arianoutsou · Ioannis Bazos · Coliu W. Bean · Olaf Booy · Marc Botham · J. Robert Britton · Javier Lobon Cervia · Pantelis Charliaou · Niki Chartosia · Hannah J. Dean · Pinelopi Delipetrou · Andreas C. Dimitriou · Gerald Dörflinger · Jim Fawcett · Georgios Fyttis · Alexandros Galanidis · Bella Galii · Thomas Hadjikyriakou · Margarita Hadjistylli · Christina Ieronymidou · Carlos Jimenez · Paraskevi Karachle · Nikos Kassinis · George Kerametsidis · Alexander N. G. Kirschel · Periklis Kleitou · Demetris Kleitou · Paraskevi Manolaki · Nikolas Michalildis · J. Owen Mountford · Charis · Nikolaou · Athina Papathedodulou · Giorgios Payiatas · Filipe Ribeiro · Stephanie L. Rorke · Vianna Samuel · Pantelis Savvides · Stefanie M. Schafer · Ali Serhan Tarkan · Iolanda Silva-Rocha · Niddeniz Top · Elena Tricarico · Katherine Turvey · Jakovos Tziortzis · Elli Tzirkalli · Hugo Verreycken · Ian J. Winfield · Argyro Zenetos · Helen E. Roy ©



ORIGINAL RESEARCH published: 21 October 2020



Horizon Scanning to Predict and Prioritize Invasive Alien Species With the Potential to Threaten Human Health and Economies on Cyprus

OPEN ACCESS

Ana Sofia Vaz, University of Granada, Spain

Reviewed by: Michaela Rioberts, The James Hutton Institute, United Kingdom Bernd Lenzner, University of Vienna, Austria

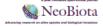
> *Correspondence: Jodey M. Peyton iovt@ceh.ac.uk

Jodey M. Peyton'". Angeliki F. Martinoug'-se, Tim Adriaensa", Niki Chartoslas', Paraskevi K. Karachie", Meligang Rabitsch', Elena Ticarico', Margarita Arianoutsous'', Sven Bacher''', loannis Bazos''', Giuseppe Brundu''i, Elizabeth Brund-McClung', if Charatambidou''', Monico Demetrious', Marika Galanidi''', Bella Galli''', Rhian Guillem''', Kypros Hadjiafxentis'', Louis Hadjianonu'', Margarita Hadjistyli''', Sason Michael Hall-Spencer'''', Carlos Jimenez'', Graham Johnstone'', Periklik Kleitou'''-1, Demetris Kletou''', Despina Koukkoutaridou'', Stalo Leontious'', Norter Maczeys'', Nikolas Michailldis's , John Owen Mountford', Athina Pagatheodoulou'', Gliver L. Pescott'', Constantinos Phanis'', Cristina Preda''', Steph Rorke', Richard Shaw''', Wejolech Solares', Christin Paylor', Saso Trajanovski''', Iakovs Tziortzis''', Elli Tzirkalii'''', Ahrnet Uludag''', Giovanni Vimercati''', Konstantin Zdraveski''', Argyro Zenetos'' and Helen E. Roy''

Documenting alien species in Cyprus

NeoBiota 83: 11–42 (2023) doi: 10.3897/neobiota.83.96823 https://neobiota.pensoft.net







Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa" 65 (1): 37–43 (2022) doi: 10.3897/travaux.65.e81350

FAUNISTIC NOTE

The Alien to Cyprus Entomofauna (ACE) database:
a review of the current status of alien insects
(Arthropoda, Insecta) including an updated species
checklist, discussion on impacts and recommendations
for informing management

Jakovos Demetriou^{1,2,3}, Canella Radea¹, Jodey M. Peyton⁴, Quentin Groom⁵, Alain Roques⁶, Wolfgang Rabitsch⁷, Nicos Seraphides⁸, Margarita Arianoutsou¹, Helen E. Roy⁴, Angeliki F. Martinou^{2,3,9}



Hellenic Plant Protection Journal 15: 76-79, 2022 DOI 10.2478/hppj-2022-0009

SHORT COMMUNICATION

First record of the Nearctic *Ozognathus cornutus* (LeConte, 1859) (Coleoptera: Ptinidae: Anobiinae) in Cyprus

J. Demetriou^{1,2}, G. Kakiopoulos³ and A.F. Martinou^{2,4*}



First record of the alien seed beetle Stator limbatus (Coleoptera, Chrysomelidae, Bruchinae) from Cyprus

Jakovos Demetriou^{1,2}, George Kakiopoulos³, Jiri Háva⁴, Angeliki F Martinou^{1,2,5}, Alex Delobel⁶



OF NATURAL HISTORY
NATIONAL MUSCUM
THE JOURNAL MUSCUM
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Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa" 65 (1): 25-36 (2022) doi: 10.3897/travaux.65.e82873

FAUNISTIC NOTE

First records of the alien *Eucalyptus* psyllids *Blastopsylla* occidentalis (Hemiptera, Aphalaridae) from Cyprus and *Platyobria biemani* (Hemiptera, Aphalaridae) from Cyprus and continental Greece

Jakovos Demetriou^{1, 2}, Evangelos Koutsoukos^{3, 4}, Leonidas-Romanos Davranoglou⁵, Helen E. Roy⁶, Malkie Spodek⁷, Angeliki F. Martinou^{1, 2, 8}



Predicted high risk INNS across all UKOTs

		Frequency of occurrence
Perna viridis	Asian green mussel	21
Wasmannia auropunctata	little fire ant	18
Lissachatina fulica	giant African land snail	14
Rattus norvegicus	brown rat	13
Aedes albopictus	Asian tiger mosquito	11
Pterois miles	Lionfish	11
Magallana gigas	Pacific oyster	11
Aedes aegypti	yellow fever mosquito	10
Mytilus galloprovincialis	Mediterranean mussel	10









DOI: 10.1111/conl.12928

LETTER



Horizon scanning for potential invasive non-native species across the United Kingdom Overseas Territories

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Katharine M. A. Turvey<sup>2</sup> | Ian J. Winfield<sup>14</sup> | David K. A. Barnes<sup>15</sup> | Diane Baum<sup>16</sup> |
Keith Bensusan<sup>17</sup> | Frederic J. Burton<sup>18</sup> | Peter Carr<sup>19</sup> | Peter Convey<sup>15</sup> |
Alison I. Copeland<sup>1,20</sup> | Darren A. Fa<sup>21</sup> | Liza Fowler<sup>22</sup> | Emili García-Berthou<sup>23</sup> |
Albert Gonzalez<sup>24</sup> | Pablo González-Moreno<sup>25,26</sup> | Alan Gray<sup>27</sup> |
Richard W. Griffiths<sup>28</sup> | Rhian Guillem<sup>24</sup> | Antenor N. Guzman<sup>29</sup> |
Jane Haakonsson<sup>17</sup> | Kevin A. Hughes<sup>15</sup> | Ross James<sup>30</sup> | Leslie Linares<sup>31</sup> |
Norbert Maczey<sup>26</sup> | Stuart Mailer<sup>32</sup> | Bryan Naqqi Manco<sup>33</sup> | Stephanie Martin<sup>34</sup> |
Andrea Monaco<sup>35</sup> David G. Moverley<sup>36</sup> Christine Rose-Smyth<sup>37</sup>
Jonathan Shanklin<sup>15</sup> | Natasha Stevens<sup>22</sup> | Alan J. Stewart<sup>38</sup> |
Alexander G. C. Vaux<sup>39</sup> | Stephen J. Warr<sup>40</sup> | Victoria Werenkaut<sup>41</sup> o
Helen E. Roy<sup>2</sup> ©
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Engaging people in decision-making

Received: 15 February 2020 Accepted: 25 February 2020

LETTER TO THE EDITOR

DOI: 10.1111/gcb.15062

lobal Change Biology

Guiding principles for utilizing social influence within expert-elicitation to inform conservation decision-making







experts to interact and



2. Develop and share structured approach; include simple scoring system for prioritization



required but ensure everyone agrees and understands the changes



5. Acknowledge and document the knowledge limits of the experts



6. Acknowledge and document extent of gaps in evidence



7. Empower all experts and ensure engagement throughout the elicitation



8. Provide sufficient time for discussions while ensuring effective and fair facilitation









Control



DOI: 10.1111/1365-2664.13631

PRACTITIONER'S PERSPECTIVE



A call to arms: Setting the framework for a code of practice for mosquito management in European wetlands

Angeliki F. Martinou^{1,2,3} | Stephanie M. Schäfer⁴ | Rubén Bueno Mari⁵ | Ioanna Angelidou¹ Kamil Erguler² | James Fawcett¹ | Martina Ferraguti⁶ | Rémi Foussadier⁷ Trisevgeni V. Gkotsi⁸ | Christos F. Martinos⁸ | Martina Schäfer⁹ | Francis Schaffner¹⁰ | Jodey M. Peyton⁴ | Bethan V. Purse⁴ | Denis J. Wright¹¹ | Helen E. Roy⁴

The pillars of Integrated Mosquito Management Area-wide approaches Education & Linking environmental Research policy with public communication health Applied Collaborative efforts Regional & Surveillance Local authorities Non-target species Basic Control | Habitat management Interdisciplinary Public Biodiversity Designation of buffer zones Citizen-science Multidisciplinary Ecosystem services Source reduction Conservation Monitoring for nongroups target impacts Operational assessment Resources & Training



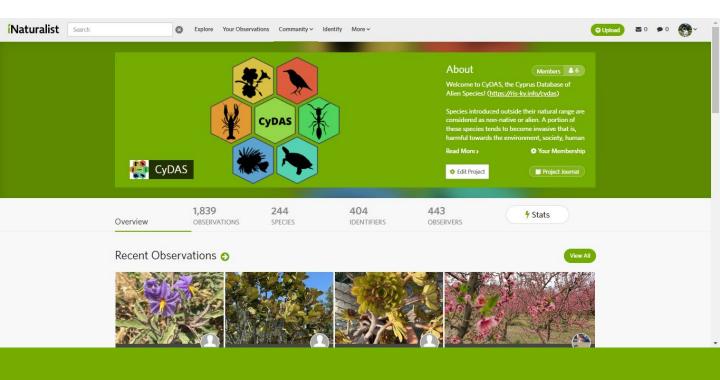








Engaging people in recording alien species

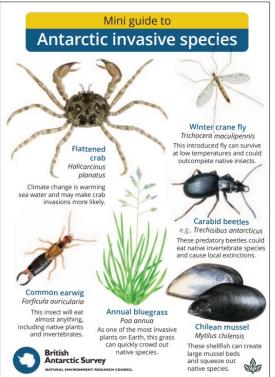


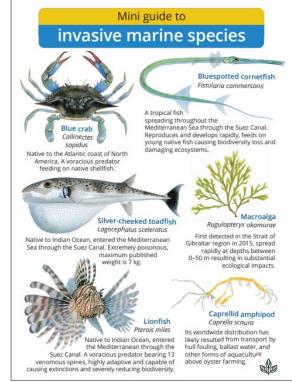






Raising awareness and communicating threats











Species richness and biological invasions of Chalcid wasps in Akrotiri Peninsula

Evangelos Koutsoukos

Kelly Martinou (JSHU) and Christos

Georgiadis (University of Athens)



9 Families

31 Genera

44 Species/Morphospecies 12 unidentified specimens

2 and a Color

2 new species to Science

1 new genus?

7 alien species





Now:

15 Families

50+ Genera

>250+ Species/Morphospecies

> 6 new species to Science

2-3 new genera?

50+ alien species









What about microbes?

Conservation Letters

A journal of the Society for Conservation Biology

Open Acces

POLICY PERSPECTIVES

Alien Pathogens on the Horizon: Opportunities for Predicting their Threat to Wildlife

- Build global interdisciplinary capacity, expertise & co-ordination for wildlife pathogens
- Implement global long-term monitoring & surveillance of host & vector species, to facilitate detection and evaluation of threats
- Implement global long-term health surveillance, including pathogen screening, of host populations to inform pathway management
- Foster the inclusion of pathogens in relevant invasive alien species datasets & increase awareness among policy & decision makers, wildlife managers, scientists & citizens
- Improve representation of wildlife pathogens within One Health initiatives, legislation, policy & management frameworks







OneSTOP OneBiosecurity Systems and Technology for People, Places, and Pathways





Rapid and reliable reporting of invasive

alien species

Prioritisation

Effective data-driven systems for identifying and ranking risks



Open data delivered quickly to the people who need it



Socio-political Action

Harmonise policy, enhance public engagement and inform management

















































Pillars



DETECTION

Testing four novel methods for the detection of invasive alien species



PRIORITISATION

Implementing a prioritisation system for informed management



DISSEMINATION

Ensuring
data and tools are shared
with the people who
need them



SOCIO-POLITICAL ACTION

Improving engagement, policy and management strategies



https://onestop-project.eu/about#about







nature ecology & evolution

Perspective

https://doi.org/10.1038/s41559-024-02412-w

Curbing the major and growing threats from invasive alien species is urgent and achievable





consolvation and retworking allowing stakeholders and governments can ensure equitable knowledge access (established but incomplete) {D31}* and improve understanding of the contextspecific features of biological invasions and their impacts (KM-D5).

Public awareness contributes to the effective management of

Enhanced coordination and collaboration across international and regional mechanisms are key strategic actions for rapid and transformative progress (setablished but incomplete) (D28). Such coordination and collaboration efforts would consider the stade-offs across sectors (D26), state-indices and incigenous Precipies and local communities (D28), and their interdependence between invasive allen species and other invente (state) and the process and other invente (sate) (D28).

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Many collaborators and volunteer recorders



















Science and Policy for People and Nature



Natural Environment Research Council