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COST Action ES1304
(24/10/2013 – 23/10/2017)

European network on invasive parakeets (ParrotNet): understanding invasion dynamics and risks to agriculture and society

PROGRESS REPORT 2
(24/10/2013 – May 2016)

This report is submitted by the MC Chair on behalf of the Management Committee and is validated by the Scientific Committee of the COST Association.

Executive summary of the Progress Report:

ParrotNet (COST Action ES1304) is now into its third year and has grown in size from 12 to 18 participating countries and has grown in membership from 35 to a total of 134 participants.

The Action objectives are to (i) Define and quantify the current impacts of parakeets on European agro-economy, society and wildlife and also to evaluate the social and ecological feasibility of different policies aiming to reduce those impacts; (ii) create a virtual European Monitoring Centre to monitor spread of parakeets and other invasive parrot species in order to predict future impacts on European agro-economy, society and wildlife and characterise *'risk-profiles'* involving scenario-based projections to make EU-level policy recommendations; (iii) integrate all available evidence to determine what factors limit distribution, abundance and population growth rate of parakeets across Europe, in order to inform policy and (iv) integrate all available evidence to establish extent and nature of evolutionary change by parakeets and prioritize utility of information for predicting future invasion pathways, in order to evaluate their response to climate change across the EU landscape.

The network has organised five 3-day MC+Working Group 1-4 meetings (Canterbury, UK, 10-12th February 2014; Seville, Spain, 8-10th October 2014; Heidelberg, Germany, 10-12th February 2015; Florence, Italy 7-9th October 2015; Antalya, Turkey 1-3rd March 2015) and five workshops (Zielona Gora, Poland; 27th March 2014; Leeds, UK, 10th July, 2014; Canterbury, UK, 11-12th September 2014; Paris, France, 2nd-3rd March 2015; Tallinn, Estonia, 8-9th July 2015).

The network has produced nine collaborative publications from across the network (five during the last year), has supported 21 STSMs (an additional eight since M18 report), has developed and launched the virtual ParrotNet European Monitoring Centre, has developed a piloted version of a mobile phone application (for public dissemination and education about invasive parakeets) and has attracted wide media coverage regarding the importance of invasive parrots and the impacts they bring.

Networking activities between Action participants, made possible by the 21 STSMs and the total ten meetings/workshops, have enabled considerable progress in the following research areas; integration of evolutionary genetic information into bioclimatic envelope models used to predict spread of invasive parakeets across Europe (WG4); initiation of quantitative social science studies of public perception of invasive parakeets (WG1); initiation of a review of the impacts of invasive parakeets (WG1); coordination of collection of parakeet feathers from across the native and invasive range of invasive parakeets to facilitate genetic studies of evolutionary adaptation (WG4), and collation and updating of information on distribution of invasive parakeets and drivers of population growth and spread (WG3). Membership of ParrotNet's three IPCs (Mauritius, Argentina, South Africa; two STSMs were recently completed in Argentina and South Africa) are facilitating a global reach which reflects the global nature of the European problems being experienced by invasive parakeets.

Summary assessment of Progress Review by Action Rapporteur:	
Based on the Progress Report 2 submitted by the MC Chair, together with the action webpage and also the MoU, the progress of the Action is assessed as follows: - At the beginning of the third year, the Action has been significantly growing both in the number of countries joining the network (from 12 to 18) and the number of participants (from 35 to 134), comparing to those represented in the kick-off meeting. Comparing to the first report, the number of participants has been increased from 100 to 134. - Judging against the Action objectives defined in the MoU there are several important outcomes reached during the reporting period. The objectives were promoted through five MC and working group meetings (UK; Spain, Germany, Italy and Turkey) and five workshops (Poland, UK, UK, France and Estonia). - Action objectives constituted a core part of the goals of nine collaborative publications from across the network (five during the latest year), and also the topics of 21 STSMs (eight during the latest year). - Some objectives have been reached through development and launch of the virtual ParrotNet European Monitoring Centre as well as development of a piloted version of a mobile phone application (for public dissemination and education about invasive parakeets), but it should be emphasized that these two activities had already been in progress before the First Progress Report. - Networking activities among the Action participants have enabled considerable progress in the following research areas: integration of evolutionary genetic information into bioclimatic envelope models used to predict the spread of invasive parakeets across Europe (WG4); initiation of quantitative social science studies of public perception of invasive parakeets (WG1); initiation of a review of the impacts of invasive parakeets (WG1); coordination of collection of parakeet feathers from the native and invasive range of invasive parakeets to facilitate genetic studies of evolutionary adaptation (WG4), and collation and updating of information on distribution of invasive parakeets and drivers of population growth and spread (WG3). - Membership and active networking of and within three IPCs (Mauritius, Argentina, South Africa) are facilitating a global reach-out which reflects the global nature of European problems caused by invasive parakeets. - Regarding the importance of invasive parrots and the impacts in society, the Action has attracted a wide media coverage. The importance of this Action extends out of the field related to invasive birds. Invasive Alien Species (IAS) present an increasingly urgent economic, societal and environmental problem. Being invasive species, parakeets pose a number of hazards to Europe's economy and society, which are likely to increase as the global climate change creates a warmer Europe. This COST Action ES1304 is not important only for solving the problems with invasive parrots, but also represents a model for fighting a great number of other invasive species. According to what has been stated above, this Action has reached the MoU objectives so far and no corrective measures need to be implemented.	
Action Rapporteur	Name Institution Country

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I. Progress Report

I.A. COST Action Profile

Objective/ Aim

The rose-ringed parakeet is listed amongst the top 100 worst alien species in Europe, and since the 1970s has rapidly established itself in over 100 cities across the continent and beyond. They have begun to pose problems in urban and rural areas such as disturbance to humans (including potential to transmit diseases to livestock and humans), competition with native wildlife and, increasingly, as an agricultural pest, already prompting changes in national policies. Worryingly, farming practices that adapt to global climate change and a warmer Europe facilitate the continued expansion of parakeet populations, amplifying the problems parakeets pose for European agro-economy. More generally, a temporal, spatial and social perspective of biological invasion is crucial to address, understand and solve the alien species problem but is lacking. This Action will help to (i) better understand why some species such as parakeets are highly successful invaders, (ii) harmonise methodologies to predict agricultural, economic, societal and ecological impacts across Europe, and the means to mitigate them, (iii) create a virtual European Monitoring Centre for all invasive parrot species, and (iv) transfer results to policy and society. The Action fulfils EU 2020 Biodiversity Strategy, Convention on Biological Diversity and Syracuse Charter recommendations on invasive species.

Details

MoU:	013/13	Start of Action:	24/10/2013
CSO approval date:	15/05/2013	End of Action:	23/10/2017

COST Member Countries and Cooperating State having accepted the MoU

Austria, Belgium, Bulgaria, Denmark, Estonia, France, Germany, Greece, Israel, Italy, Netherlands, Poland, Portugal, Slovenia, Spain, Switzerland, Turkey, United Kingdom

Intentions to Accept the MoU

0

Other participants:

Institution Name	Country
Mauritius Wildlife Foundation	Mauritius
University of the Witwatersrand, Johannesburg	South Africa
Universidad Nacional del Centro de la Provincia de Buenos Aires	Argentina

Contacts

Chair/ Vice Chair

Position	Name	Contact details	Country	Date of PhD:	Gender
Chair:	Dr Jim Groombridge	University of Kent Durrell Institute of Conservation and Ecology (DICE) School of Anthropology and Conservation, Marlowe Building University of Kent CT27NR Canterbury United Kingdom +441227824097 J.Groombridge@kent.ac.uk	United Kingdom	2000	Male
Vice Chair:	Dr Diederik Strubbe	University of Antwerp Evolutionary Ecology Group Middelheimcampus G.V.323b 2020 Antwerp Belgium +32477445568 diederik.strubbe@uantwerpen.be	Belgium	2009	Male

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Working Group Leaders

WG#	WG Title	WG Leader	Country	Date of PhD:	Gender	Number of participants
1	Impacts on society/economy/environment, and public perception	Assaf Shwartz	Israel	2011	Male	42
2	European Monitoring Centre	Hazel Jackson	United Kingdom	2015	Female	30
3	Drivers of population distribution and growth	Martina Carrete	Spain	2002	Female	20
4	Evolutionary change and prediction of invasion	Diederik Strubbe	Belgium	2009	Male	22

Other positions if applicable (STSM Coordinator, WG Vice Leader, Task Force Leader…)

Position	Name	Country	Date of PhD:	Gender
STSM Coordinator, Core Group Member	Martin Dallimer	United Kingdom	2001	Male
Core Group Member	Hazel Jackson	United Kingdom	2015	Female
Core Group Member	Martina Carrete	Spain	2002	Female
Core Group Member	Diederik Strubbe	Belgium	2009	Male
Core Group Member	Assaf Shwartz	Israel	2011	Male

Action website:	http://www.kent.ac.uk/parrotnet/

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I.B. Progress with MoU objectives and deliverables and additional outputs
MoU objectives

MoU objective	Achieved Yes/ Partially/ No	Evidence of (partial) achievement including hyperlink to enable assessment of the achievement[1]. Justification if full achievement is not forseen
Define and quantify the current impacts of parakeets on European agro-economy, society and wildlife and also evaluate the social and ecological feasibility of different policies aiming to reduce those impacts.	Partially	All folders and files referred to are contained in the ParrotNet Google Drive, which is accessible to ParrotNet participants (please contact the Action Chair, Jim Groombridge, to join the Action). Working group (WG1) met in February 2013 to define the current impacts of parakeets on society, wildlife and agriculture. ParrotNet experts gathered together at a meeting in Paris in March 2015 to assess the impacts of parakeets using recognised assessment guidelines. A publication detailing the results of this workshop has been submitted to *Conservation Letters*. A further workshop was held in Tallinn, Estonia in July 2015 to develop and design methods to quantify damage to agriculture by parakeets. A ParrotNet participant and PhD student at the University of Kent is formulating a social perception questionnaire which aims to evaluate the perception of the public concerning different policies of reducing the impacts. This activity is a collaboration with Danish partner Dr Thomas Lundhede who has already completed an STSM (Denmark to UK) contributing to this theme (STSMs Y1). The questionnaire, facilitated by an STSM to an early career researcher (UK to Denmark), was carried out in 2015 and a report/publication is expected this year (2016). Two ParrotNet participants (Mori and Menchetti) have published a peer-reviewed publication of the impacts of parrots across the world in which COST is acknowledged (Publications: Menchetti and Mori 2014).
Create a virtual EMC to monitor spread of parakeets and other invasive parrot species in order to predict future impacts on European agro-economy, society and wildlife and characterise *'risk-profiles'* involving scenario-based projections to make EU-level policy recommendations.	Yes	The European Monitoring Centre (EMC) has been created and is hosted by the University of Kent on the ParrotNet website. http://www.kent.ac.uk/parrotnet/map.html This resource presents records of occurrences of non-native parrots across Europe and enables policy-makers and the general public to contribute their own observations. The creation of the EMC was facilitated by an STSM by Rachel White, an ECR, (UK to Germany) and is the first step towards predicting future impacts and characterising risk-profiles. The EMC now also has the functionality to visualise temporal patterns of spread from 1967-2014 (see 'timeline' on EMC toolbar). The EMC will continue to be populated with more comprehensive data in 2016 as WG2 explores the possibility of combining data from National Monitoring schemes across Europe. Following the MC+WGs meeting in Heidelberg in February 2015 and the launch of the EMC, National Monitoring scheme coordinators

[1] The links to the outputs and deliverables will be used by the Action Rapporteur in assessing the progress.

		have been approached to explore opportunities for including datasets. Furthermore, additional datasets will be incorporated into the EMC for additional species of invasive parrots. The development of the EMC has also resulted in a strong collaborative working relationship with the BTO (British Trust for Ornithology, UK), one of Europes foremost ornithological agencies which will enable continued data sharing. In May 2015, the Action Chair had a meeting with the BTO in Thetford, UK to collaborate and share invasive parrot distribution data. A WG2 meeting was held in Bulgaria in July 2015 on using citizen science data to analyse trends in the distribution and spread of invasive parrots. Data from the Global Biodiversity Information Facility (GBIF) and eBird has now also been added to the EMC. In total the EMC now contains 31,453 records of 13 species of invasive parrots across Europe. The EMC has also created a library of literature available for all ParrotNet participants to access via the ParrotNet Google Drive (ParrotNet Library).
Integrate all available evidence to determine what factors limit distribution, abundance and population growth rate of parakeets across Europe, in order to inform policy.	Partially	All available evidence concerning current distribution and abundance of parrots in Europe has been collated and is available to all participants via the ParrotNet Google Drive (useful online datasets). This resource was identified at the initial MC+WGs meeting in Canterbury, UK, as an important resource for all WGs and participants. It was facilitated via two STSMs involving Early Career Researchers, Rachel White (UK to Germany) and Liviu Parau (Netherlands To Germany). The reports from these STSMs can be found on the ParrotNet Google Drive (STSMs Y1). Analysing the limiting factors of distribution, abundance and growth rate is ongoing; a number of ParrotNet outputs/publications demonstrate the progress being made, e.g. outputs 1 and 4 utilise genetic data in combination with climatic and trade data to understand how suitable climates in invaded ranges and introduction effort from the pet trade both contribute to explain the distribution of invasive parrots across Europe.

MoU deliverables

MoU deliverable	Level of progress[1]	Evidence of (partial) delivery achievement including hyperlink to enable assessment of the delivery[1]. Justification if full achievement is not forseen
Create a virtual EMC to monitor spread of parakeets and other invasive parrot species	Ongoing	The EMC has been launched, is functioning, and the addition of new datasets is ongoing. http://www.kent.ac.uk/parrotnet/map.html

Co-authored publications and FP7/ H2020 proposals

The co-authored publications and FP7/ H2020 proposals/ projects resulting from the Action are listed on the page following the “Additional outputs and achievements” section

Additional outputs and achievements

Please describe any other outputs and achievements that have resulted or are in progress, focusing in particular on those that contribute to the COST mission of “COST enables break-through scientific

developments leading to new concepts and products and thereby contributes to strengthen Europe's research and innovation capacities."

ParrotNet continues to progress with a number of other outputs and achievements which aim to contribute to the COST mission. In an effort to increase the dissemination power of ParrotNet and to engage Early-Career Researchers, ParrotNet teamed up with students from the University of Kent's Master's degree programme 'Mobile Application Design'. Students registered on this degree have participated with ParrotNet in developing a freely downloadable mobile phone application which has the potential to raise public awareness of the issues associated with invasive species, and help to disseminate ParrotNet outputs using the latest technological methods. Further embracing the current increasing trend in technology and social media use ParrotNet has also established a healthy following of 193 followers (an increase of over 60 followers during the last year) on its Twitter account where up-to-date news and information regarding issues concerning invasive species can be shared with a global audience https://twitter.com/parrotneteu

ParrotNet has been very active in collaborating with other COST Actions. Through the networking opportunities provided by COST ParrotNet has welcomed the Chairs of ES1305 and TD1209, (Dr Jason Chapman and Dr Helen Roy respectively) as members. A collaboration between eight participants of ParrotNet and Alien Challenge (TD1209: Chaired by Dr Helen Roy) has produced a manuscript concerning the new EU regulations on invasive species which has resulted in an important publication in *Conservation Letters* (see below) that makes a number of strategic recommendations to EU policy-makers. Both COST Actions (TD1209 and ES1304) have benefitted from their shared interests and a number of participants attend meetings organised by both networks allowing expertise to be transferred between Actions.

ParrotNet members have been actively disseminating the work of the Action in numerous European countries since its inception. These outputs include; an article published in International Innovation (funded by COST, Publications: International Innovation article), press coverage in Russia (http://russiannewsonline.blogspot.co.uk/2014/08/scientists-invasion-of-parrots-in.html), Poland (http://naukawpolsce.pap.pl/aktualnosci/news,401464,naukowcy-inwazja-papug-w-polsce-jest-tylko-kwestia-czasu.html), a feature in the Newsletter of the EU-office, Bavaria (Publications: NEUS 21), an interview on Canal Sur TV, in the program "Espacio Protegido", Protected Space;. www.canalsuralacarta.es/television/video/especies-invasoras/1846316/28, a press release of the University of Antwerp (see news section, March 23, https://www.uantwerpen.be/en/rg/global-change-ecology/), and an interview for the CBC news; http://www.cbc.ca/news/world/feral-parakeets-spreading-across-uk-1.3439467.

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Co-authored publications and FP7/ H2020 proposals

Co-authored publications

Enter in the table below only publications on the topic of the Action, co-authored by at least two Action participants from two different countries participating in the Action and for which the Action networking added value. A maximum of ten publications may be entered. If the Action has more than ten such publications the Core Group should select the ten most significant ones to include in the table below.

NO.	Bibliographic data (including: Title, Authors, Title of the periodical or the series, Issue number or volume, Publisher, Year of publication, Relevant pages)	Main author	Number of authors	Action participants listed among the authors (Name, country and role[2])	WGs involved in publication	Date of submission (must be after Action start date)	Expected date of publication (if not already published)	Persistent link to publicly available version of the paper (if available) or the abstract	Is/Will open access[3] provided to this publication?	Is/ will COST be cited/ acknowledged in the publication?	Are/ will COST funds (be) implicated in this publication	Relevance to H2020 Societal Challenges[4]?	Is it peer-reviewed?	Was the added value of the Action Networking necessary for the publication	Impact Factor (if ap
1	Strubbe, D., Jackson, H., Groombridge, J., & Matthysen, E. (2015). Invasion success of a global avian invader is explained by within- taxon niche structure and association with humans in the native range. *Diversity and Distributions,* 21, 675-685	*Diederik Strubbe*	*4*	*Strubbe Belgium, Vice-Chair, Jackson, UK, MC substitute, Groombridge, UK, Chair and Matthysen, Belgium, MC Member*	*4, 3*			*http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1472-4642/earlyview*	*no*	*yes*	*no*	This publication is highly relevant to understanding how species move under changing climate.	*yes*	*yes*	*5.469*
2	Tollington, S., Turbé, A., Rabitsch, W., Groombridge, J.J., Scalera, R., Essl, F. & Shwartz, A. (2015) Making the EU Legislation on Invasive Species a Conservation Success. *Conservation Letters,* DOI: 10.1111/conl.12214	*Simon Tollington*	*7*	*Tollington, UK, MC Member, Turbe, France, WG Member, Groombridge, UK, Chair, Rabbitsch, Austria, MC Member, Scalera, Italy, WG Member, Shwartz, Israel, MC Member,*	*1,2,*	*28/3/15*	*17/12/2015*	*http://onlinelibrary.wiley.com/doi/10.1111/conl.12214/abstract*	*Yes*	*Yes*	*Yes*	This paper will inform European policy concerning invasive species.	*Yes*	*Yes*	*7.241*
3	Groombridge, J., Strubbe, D. and Shwartz, A. (2014) Avian aggregation: pesky parakeets. *International Innovation.* 146, pp92-93	*Jim Groombridge*	*3*	*Groombridge, UK, Chair, Strubbe Belgium, Vice-Chair, Shwartz, Israel, MC*	*1,4*	*20/6/2014*	*17/7/2014*	*http://digimag.internationalinnovation.com//launch.aspx?eid=e67260c3-ee02-47d8-842e-d9a3006b9e33&pnum=94&utm_campaign=170714+EF32+issue+146+-+referred+contacts+email+Jim+Groombridge&utm_source=emailCampaign&utm_medium=email&utm_content=*	*yes*	*yes*	*yes*	Climate action, environment, resource efficiency and raw materials	*no*	*yes*	*NA*
4	Jackson, H., Strubbe, D., Tollington, S., Prys-Jones, R., Matthysen, E. & Groombridge, J.J. (2015) Ancestral origins and invasion pathways of the globally invasive ring-necked parakeet (*Psittacula krameri*), correlate with climate and influences from the pet bird trade, *Molecular Ecology,* 24, 4269-4285.	*Hazel Jackson*	*6*	*Strubbe Belgium, Vice-Chair, Jackson, UK, MC substitute, Groombridge, UK, Chair and Matthysen, Belgium, MC Member, Tollington, UK, MC Member*	*4*	*01/11/14*	*31/07/15*	*http://onlinelibrary.wiley.com/doi/10.1111/mec.13307/full*	*Yes*	*Yes*	*No*	This publication is highly relevant to understanding how species move under changing climate and the influence of the pet bird trade.	*Yes*	*Yes*	*6.494*
5	Jackson, H., Jones, C.G., Agapow, P., Tatayah, V. and Groombridge, J. (2015) Micro-evolutionary diversification among Indian Ocean parrots: temporal and spatial changes in phylogenetic diversity as a consequence of extinction and invasion. *Ibis*.	*Hazel Jackson*	*5*	*Jackson, UK, MC substitute, Groombridge, UK, Chair, Tatayah, Mauritius, IPC.*	*4*	*6/11/14*	*25/4/15*	*http://onlinelibrary.wiley.com/doi/10.1111/ibi.12275/abstract*	*No*	*Yes*	*No*		*Yes*	*Yes*	*1.861*

[2] MC Member/ MC Substitute/ MC Observer/ WG Member/ Training School Trainee/ STSM Recipient/ Other Action Participant

[3] Open Access is defined as free of charge access for anyone via Internet. Please answer "yes" if the open access to the publication is already established and also if the embargo period for open access is not yet over but you intend to establish open access afterwards.

[4] H2020 Societal Challenges are “Health, demographic change and wellbeing”; “Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy”; “Secure, clean and efficient energy”; “Smart, green and integrated transport”; “Climate action, environment, resource efficiency and raw materials”; “Europe in a changing world - inclusive, innovative and reflective societies”; “Secure societies - protecting freedom and security of Europe and its citizens”

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6	Ancillotto, L., Strubbe, D., Menchetti, M. & Mori, E. (2015) An overlooked invader? Ecological niche, invasion success and range dynamics of the Alexandrine parakeet in the invaded range. *Biological Invasions*, 18, 583-595.	*Leonardo Ancillotto*	*4*	*Anchillotto Italy WG member, Strubbe Belgium Vice Chair, Menchetti Italy WG member, Mori Italy MC member.*	*1, 4*	*18/6/2015*	*24/11/2015*	*http://link.springer.com/article/10.1007/s10530-015-1032-y*	*No*	*Yes*	*No*	This paper will inform policy and mitigation to prevent future spread of invasive species	*Yes*	*yes*	*2.586*
7	Mori, E., Ancillotto, L., Groombridge, J., Howard, T., Smith, V. S., & Menchetti, M. (2015). Macroparasites of introduced parakeets in Italy: a possible role for parasite-mediated competition. *Parasitology research*, *114*(9), 3277-3281.	*Emiliano Mori*	*6*	*Mori Italy MC Member, Ancillotto Italy WG member, Groombridge UK Chair, Menchetti Italy WG member.*	*1*	*25/03/2015*	*31/05/2015*	*http://link.springer.com/article/10.1007%2Fs00436-015-4548-2*	*No*	*Yes*	*No*	*This paper is relevant to understand potential disease risks from invasive species*	*Yes*	*Yes*	*2.098*
8	Pârâu LG, Strubbe D, Mori E, Menchetti M, Ancillotto L, van Kleunen A, White RL, Luna A, Hernandez-Brito D, Le Louarn M, Clergeau P, Albayrak T, Franz D, Braun MP, Schroeder J, Wink M, (2016) Rose-ringed Parakeet *Psittacula krameri* populations and numbers in Europe: a complete overview *The Open Ornithology Journal*, *9*, 1-13.	*Liviu Pârâu*	*16*	*Pârâu Netherlands WG member, Strubbe Belgium Vice-chair, Mori Italy MC member, Ancillotto Italy WG member, van Kleunen Netherlands MC member, White UK WG member, Luna Spain STSM candidate, Hernandez-Brito Spain WG member, Clergeau France MC member, Franz Germany WG member, Braun Germany WG member, Schroeder Germany MC member, Wink Germany WG member*	*3, 4*	*20/12/2015*	*23/02/2016*		*Yes*	*Yes*	*No*	*This review will inform management and mitigation of invasive parrots across Europe.*	*Yes*	*Yes*	
9	Le Gros, A., S. Samadi, D. Zuccon, R. Cornette, M. P. Braun, J. C. Senar and P. Clergeau. (2016) Rapid morphological changes, admixture and invasive success in populations of Ring-necked parakeets (*Psittacula krameri*) established in Europe. *Biological Invasions, in press.*	*Arianne Le Gros*	*7*	*Le Gros France WG member, Braun Germany WG member, Senar Spain WG member, Clergeau France MC member.*	*3*	*22/06/2015*	*29/02/2016*	*http://link.springer.com/article/10.1007%2Fs10530-016-1103-8*	*No*	*Yes*	*Yes*	*This paper is important to enable an understanding of adaptive evolutionary processes that play a role in driving successful invasions.*	*Yes*	*yes*	*2.586*

Additional publications which acknowledge COST

M. Menchetti & E. Mori (2014) Worldwide impact of alien parrots (Aves Psittaciformes) on native biodiversity and environment: a review, Ethology Ecology & Evolution, 26:2-3, 172-194, DOI: 10.1080/03949370.2014.905981

Edelaar, P., Roques, S., Hobson, E.A., Gonçalves da Silva, A., Avery, M.L., Russello, M.A., Senar, J.C., Wright, T.F., Carrete, M. & Tella, J.L. (2015) Shared genetic diversity across the global invasive range of the monk parakeet suggests a common restricted geographic origin and the possibility of convergent selection. *Molecular Ecology*, 24, 2164-2176.

Dailos Hernandez-Britoa, Álvaro Lunab, Martina Carretec, José L. Tella (2015) Alien rose-ringed parakeets (*Psittacula krameri*) attack black rats (*Rattus rattus*) sometimes resulting in death. Italian Journal of Mammalogy http://www.italian-journal-of-mammalogy.it/article/view/10992/pdf

Hernandez-Brito D, Carrete M, Popa-Lisseanu AG, Ibanez C, Tella JL (2014) Crowding in the City: Losing and Winning Competitors of an Invasive Bird. PLoS ONE 9(6): e100593. doi:10.1371/journal.pone.0100593.

Mattia Menchettia, Riccardo Scalerab, Emiliano Mori (2014) First record of a possibly overlooked impact by alien parrots on a bat (*Nyctalus leisleri*). Hystrix, the Italian Journal of Mammalogy http://www.italian-journal-of-mammalogy.it/article/view/9989/pdf

De Febbraro, M & Mori E (2014) Potential distribution of alien parakeets in Tuscany (Central Italy): a bioclimatic model approach, Ethology Ecology & Evolution, DOI: 10.1080/03949370.2014.895424

Kumschick S, Bacher S, Evans T, Markova Z, Pergl J, Pysek P, Vaes-Petignat S, Van der Veer G, Vila M, Nentwig W (2015) Comparing impacts of alien plants and animals in Europe using a standard scoring system. Journal of Applied Ecology 52: 552-561

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J.C.Senar, J.Domènech, L.Arroyo, I.Torre & O.Gordo. 2016. An evaluation of Monk parakeet damage to crop fields in Barcelona Metropolitan área. Animal Biodiversity and Conservation *in press*

Menchetti, M., Mori, E., & Angelici, F. M. (2016). Effects of the recent world invasion by ring-necked parakeets Psittacula krameri. In *Problematic Wildlife* (pp. 253-266). Springer International Publishing.

Viana, I.R., Strubbe, D. & Zocche, J.J. (2016) Monk parakeet invasion success: a role for nest thermoregulation and bactericidal potential of plant nest material? Biological Invasions, DOI: 10.1007/s10530-016-1068-7

Cardador, L., Carrete, M., Gallardo, B. & Tella, J.L. (2016) Combining trade data and niche modelling improves predictions of the origin and distribution of non-native European populations of a globally invasive species. *Journal of Biogeography*, DOI: 10.1111/jbi.12694

FP7/ H2020 Proposals and projects

This table contains FP7/ H2020 proposals/ projects spinning off from Action activities and including in the proposing consortium at least three Action participants from at least three different countries participating in the Action.

NO.	Title	Name and country of main proposer	Number of proposers	Action participants listed among the proposers (Name, country, role[3] in the Action)	Funding agency submitted to	Date submitted	Date results expected	Result	Call identifier	Relevance to H2020 Societal Challenges[4]?	Was the added value of the Action Networking necessary for the proposal / project?
Projects											
1	List FP7/ H2020 projects resulting from the Action in this section of the table										
2											
Proposals											
	List FP7/ H2020 proposals submitted as a result of the Action in this section of the table										

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I.C. Networking

Added value of the Networking
Please describe here the added value of the networking, highlighting in particular anything that would not have happened without the Action networking. ParrotNet has to date funded 21 STSMs. Almost all of these have involved Early Career Researchers visiting institutions in order to facilitate knowledge exchange and broadening skill sets that would otherwise not have occurred if it were not for the grants provided by ParrotNet. Further benefits derived from the networking of ParrotNet participants include the collaboration of multiple COST Actions. Network tools provided by COST have enabled scientists from TD1209, ES1304 and ES1305 to participate in cross-Action activities resulting in the submission of a European policy-related paper concerning invasive species (Tollington *et al.* 2015; peer reviewed publication output 2) this would not have been possible if it were not for COST-funded networking. Dissemination events have also provided the opportunity for ParrotNet participants to network with a global scientific and political audience. Two ParrotNet participants attended and spoke at international conferences in 2014 (Turkey and Japan), this led directly to the recruitment of two extra IPCs; South Africa and Argentina. A further four participants attended international conferences to disseminate research by oral and poster presentations in 2015 and early 2016.
Extent of the networking
Describe the extent of the networking among the participants in the Action. Were all participants integrated into the networking equally? Were those targeted by COST policies on Inclusiveness Target Countries (ITCs), Early Career Investigators (ECIs)/ Young Researchers, and gender balance fully integrated into the Action networking? All participants have been given equal chance to participate in the networking activities of ParrotNet. Of the 18 countries to have signed the MoU four are ITCs (Bulgaria, Slovenia, Estonia and Poland). Management Committee members from Turkey have recently signed the MoU as a result of networking at an Action meeting organised by TD1209. All of these countries have been well represented at ParrotNet meetings and one meeting was hosted by an ITC in 2014 (Poland). The Chair has made a direct effort to increase the participation of these countries by requesting that all the available slots for Management Committee members and substitutes are filled for these countries. Part of our strategy for encouraging inclusiveness is promotion of ECIs to prominent roles in the Action; for example, 3 out of the 4 WG leaders are ECIs.). Futhermore, in addition to the 3 ITCs in ParrotNet, the Action also includes Turkey (an EU candidate country) and Portugal (a country that complies with the criteria for 'Spreading Excellence and Widening Participation'). As previously stated, all of the STSMs completed to date have been carried out by ECIs/ young researchers. Conference attendees were also ECIs. The Chair and MC continue to actively support and promote gender balance wherever possible. A questionnaire was recently distributed among ParrotNet members in April 2016 to understand more about gender balance and how to attract more female researchers.

I.D. Impacts

The impacts that have resulted, or might result from the Action are described in the following table.

Description of the impact	Type of impact[5]	Timing of impact[6]
Increased awareness by general public of issues regarding invasive parrots	Societal	Foreseen 2-5 years
Increased level of activity and visibility of research on invasive parrots	Scientific	Foreseen 2-5 years

I.E Dissemination and exploitation of Action results

Describe the Action's dissemination and exploitation approach as well as all activities undertaken to ensure dissemination and exploitation of Action results and the effectiveness of these activities.
ParrotNet produced a 'who we are' accessible publication in Innovation International in 2014, and this document has been circulated widely via ParrotNet and via the journal's established readership amongst the European policy and science community.ParrotNet has supported seven participants to attend

[5] Scientific/ technological, Economic, Societal
[6] Achieved/ Foreseen within 2 years/ Foreseen 2-5 years/ Foreseen 5-10 years/ Foreseen 10+ years

international conferences (including five during 2015 and early 2016) to present on relevant aspects of work. ParrotNet has nominated two MC members (from France and UK, both ECI's) to monitor the Action's Dissemination Plan and effectiveness of activities. The Dissemination Plan is reported on at each MC meeting. For example, production of laymans summaries of the main two invasive parrot species for dissemination via the ParrotNet website have been completed for publication and will be disseminated once the final published versions are available. The prototype ParrotNet 'App' which has been developed also provides key layman information (such as species descriptions) for the invasive parrots and the main content/objective of the App is as a dissemination tool; further development of the app prototype may occur depending on the availability of University of Kent app designer students selecting to undertake the further development of this app as their research project.

Item/ activity	Target audience	Result	Hyperlink
Conference presentation, Tokyo, Japan.	Members of the International Ornithology Union	Increasing awareness of the ParrotNet project to a multinational audience at an international conference	http://ioc26.jp/ioc2014_symposia.pdf#page=27
Conference presentation, Antalya, Turkey.	Members of the European Group on Biological Invasions	Alerting professionals involved in invasive species research of the existence of ParrotNet	http://www.neobiota.eu/wp/wp-content/uploads/NEOBIOTA-2014-Abstract-Book.pdf
Innovation International	European researchers, EU policy/science community	Disseminating the aims of ParrotNet, and the rationale behind the network to a broad layman audience.	http://www.kent.ac.uk/parrotnet/publications_list.html
Invited presentation at UK COST Information Day event, London (invitation by UK CNC), 6th February 2015	Attendees at the London COST event, hosted at the BIS Conference Centre, London.	Disseminating the aims of ParrotNet, the rationale behind the network and an example of the potential that a COST Action can offer to researchers.	http://www.cost.eu/about_cost/who/(type)/5/(wid)/30084/(costid)/43340
Poster presentation BES conference, Cambridge UK	Members of the British Ecological Society	Dissemination of ParrotNet STSM research on public perceptions of invasive parrots in Europe.	http://www.britishecologicalsociety.org/events/current_future_meetings/2016-annual-symposium/
Conference presentation EU MACRO, Copenhagen	European researchers, EU policy/science community	Dissemination of ParrotNet research on the importance of bioclimatic models in invasive species management	https://twitter.com/eumacro2015
Conference presentation European Ornithological Union, Spain	European researchers, EU policy/ornithological science community	Dissemination of distribution, spread and population sizes of invasive parrots in Europe	http://eounion.org/about/previous-conferences/

I.F. Action success(es)

COST regularly communicates the successes of Actions. At this point in time what aspect(s) (outcomes and/ or impacts, rather than activities) of this Action is/ are the most suitable for communication?

Description of the success story	Dimension of the success ■ Breakthrough: scientific, technological or socioeconomic ■ Policy implementation (specify which policy) ■ Capacity building

II. Management Report

II.A. Overview of expenditure

Insert below in the yellow cells the summary of figures from the Yearly Financial Reports (YFRs) of completed Grant Periods and an IFR of any incomplete Grant Period – the Totals (non-yellow cells) will automatically sum.

	Grant Period 1	Grant Period 2a	Grant Period 2b	TOTAL
GP start and end dates	01/01/2014-30/11/2014	01/12/2014-30/09/2015	01/10/2015-30/04/2016	
Grant Holder institution	University of Kent (UK)	University of Kent (UK)	University of Kent (UK)	
Meetings	71,352.23	60,954.00	52,081.85	184,388.08
Training Schools	EUR -	EUR -	EUR -	EUR -
STSMs	13,650.00	14,900.00	12,940.00	41,490.00
Dissemination	5,688.39	1,418.14	1,668.10	8,774.63
OERSA[1]	390.37	511.98	336.07	1,238.42
Total Scientific Expenditure	91,080.99	77,784.12	67,026.02	235,891.13
FSAC[2]	12,513.47	11,667.62	10,053.90	34,234.99
TOTAL	EUR 103,594.46	EUR 89,451.74	EUR 77,079.92	EUR 270,126.12

[1] OERSA = Other Expenses Related to Scientific Expenditure (e.g. bank charges)
[2] FSAC = Amount received by Grant Holder for Financial Scientific and Administrative Coordination

II.B. Budget and Participation management

II.B.1 Budget spent in relation to individuals/ institutions outside participating COST countries

STSMs from or to institutions from countries other than Participating COST countries

The table below describes the added value STSMs to approved institutions in IPC or NNC or Specific Organisations and any STSMs from an approved institution in an NNC to a participating COST country.

Grantee		Host		Date	Topic and value added to the Action
Institution	Country	Institution	Country		
Spain, Doñana Biological Station, Seville, Spain.		University of the Witwatersrand, Johannesburg, South Africa		19/08/2015-16/11/2015	To harmonise approaches for collecting data to quantify impacts of invasive parrots in different environments. This STSM provided assistance for developing general impact assessement protocols for Europe and elsewhere.
University Gießen, Germany		Universidad Nacional del Centro de la Provincia de Buenos Aires, Argentina		24/03/2016-8/04/2016	To review available evidence for adaptation by parakeets, set in context of climate change, environmental disturbance, urbanisation and agricultural land-use change across Europe. The STSM facilitated an exchange of ideas and data necessary for study of invasion success, geographical spread and possible adaptive evolution, with a planned manuscript for publication in 2016.
Add home institution and country		Add host institution and country		Date	Describe topic of the STSM and the added value to the Action

Invited Speakers

The table below highlights the added value of Invited Speakers from COST countries that have not accepted the MoU and/ or non-participating NNC, IPC or Specific Organisations whose participation at a meeting or Training School was reimbursed by the Action.

Participant name	Institution	Country	Event date	Topic and added value to the Action
Add	Add	Add	Add	Describe the speaker's topic and the added value to the Action
Add	Add	Add	Add	Describe the speaker's topic and the added value to the Action
Add	Add	Add	Add	Describe the speaker's topic and the added value to the Action

Dissemination meetings

The table below highlights the added value of Dissemination Meetings financed from Action funds.

Participant name	Role	Country	Date	Location	Topic and added value to the Action
Simon Tollington	Speaker	Japan	August 2014	Rikkyo University, Tokyo.	Presentation regarding evolutionary ecology of native vs non-native parakeets in Mauritius. This presentation also described the work of the ParrotNet COST Action to an international audience.
Anne Turbe	Speaker	Turkey	Nov. 2014	Çanakkale Onsekiz Mart University, Antalya	This conference took place in a COST ITC and the presentation, co-authored by 8 participants of this Action and TD1209 concerned the new European Policy regulation on invasive species.
Diederik Strubbe	Speaker	Belgium	June 2015	Copenhagen	Presentation describing the usefulness and importance of

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					bioclimatic models in invasive species management
Liviu Parau	Speaker	Netherlands	2015	Spain	Presentation detailing distribution, spread and population sizes of invasive parrots in Europe

II.C. Participants

Management Committee			
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Annex 1

Definitions:

COST Action Challenge (main aim)	"The research question addressed by the COST Action targeting scientific, technological, and / or socioeconomic problems"
COST Action Innovation	"The creation and / or development of new or improved concepts, products, processes, services, and / or technologies that are made available to markets, governments and society"
COST Action objectives	"COST Action objectives are the results that an Action needs to achieve in order to respond to meet its challenge. These are SMART (Specific, Measurable, Achievable, Relevant, Timely) and twofold: research coordination objectives and capacity building objectives."
COST Action research coordination objectives	"Achieving these objectives turns COST Actions from initially scattered teams into one transnational team and leverages the existing funded research. These objectives entail the distribution of tasks, sharing of knowledge and know-how, and the creation of synergies among Action participants to achieve specific outputs."
COST Action capacity building objectives	"Achieving these objectives entail building critical mass to drive scientific progress, thereby strengthening the European Research Area. They can be achieved by the delivery of specific outputs and / or through network features or types and levels of participation."
COST Action networking activities	"any activities organised by the COST Action (whether or not directly funded by COST) in order to achieve research coordination and capacity building objectives."
COST Action networking tools	"instruments through which eligible activities can be funded"
COST Action outputs	"direct results from the COST Action activities. These can be codified knowledge, tacit knowledge, technology, and societal applications."
COST Action impact	"the short- to long-term scientific, technological, and / or socioeconomic changes produced by a COST Action, directly or indirectly, intended or unintended."
COST Action deliverable	"a distinct, expected and tangible output of the Action, meaningful in terms of the Action's overall objectives such as a report, a document, a technical diagram, a software etc. Action deliverables are used to measure its progress and success."
COST Action milestones	"Control points in the Action that help to chart progress. They are also needed at intermediary points so that, if problems have arisen, corrective measures can be taken. A milestone may be a critical decision point in the Action where, for example, the MC must decide which of several technologies to adopt for further development (e.g. core group and MC meetings, mid-term reviews)"
Inclusiveness Target Country (ITC):	Current COST Member Countries targeted by the COST inclusiveness Policy ("Inclusiveness Target Countries" (ITC)): EU 13 (Bulgaria, Cyprus, Czech Republic, Estonia, Croatia, Hungary, Lithuania, Latvia, Malta, Poland, Romania, Slovenia, Slovakia), EU candidate countries (the former Yugoslav Republic of Macedonia, Montenegro, Republic of Serbia, Turkey) and potential EU candidate countries (Bosnia and Herzegovina). In addition, to comply with the EC criteria for 'Spreading Excellence and Widening Participation', Portugal and Luxemburg are included.

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