

Supplementary file 3 List of recommendations for designing projects to ensure maximum recruitment and volunteer retention extracted from the studies used in the analysis (for their full references, please see Supplementary file 1) and their link to our recommendations.

Source (page number)	Recommendation	Recommendation in our review (1-10)
Asah and Blahna 2012 (p. 475)	Ensure that potential volunteers are more cognizant of the opportunity to fulfill their personal (making a difference; "feeling less guilty") and social motivations by taking part in the project	2
Asah et al. 2014 (p. 112)	Plan project activities in a way which will enable volunteers to achieve their personal and social motivations (e.g. organizing socially interactive activities)	2, 3
Atchison et al. 2017 (p. 344)	Ensure a more transparent communication with potential volunteers, while at the same time being more discreet with the communication promoting killing invasive animals	5
Carballo-Cárdenas and Tobi 2016 (p. 125)	To ensure volunteer retention pursue primarily intrinsically motivated volunteers	-
Cerrano et al. 2017 (p. 319)	Being aware of volunteers' dominant motivations, tailor promotional campaigns and training activities to them to ensure maximum volunteer enrollment and engagement	2
Cerri et al. 2018 (p. 7)	Ensure information flow on the impacts of IAS on invaded native ecosystems	4
Cerri et al. 2018 (p. 5, 6); Crowley et al. 2018 (p. 10, 11); Dunn et al. 2018 (p. 6); Larson et al. 2016 (p. 12); Stien and Hausner 2018 (p. 191); Phillips et al. 2021 (p. 9)	Enable volunteers and relevant stakeholders to personally witness the impacts of the target invasive species on ecosystems and native biodiversity	4
Crall et al. 2013	Favor co-created projects, where volunteers would be involved in all project stages	2
Crowley et al. 2018 (p. 10)	Be aware of the importance of individual economic interests of participants	6
Larson et al. 2016 (p. 4)	Acknowledge that decisions about wildlife management are based upon both analytical, cognitive reasoning and experiential and affective reasons	-
Dunn et al. 2021 (p. 7)	To ensure better knowledge and understanding of management activities, expose the public to everyday activities	-
Dunn et al. 2021 (p. 8)	Diversify the outreach messages to also highlight the personal (physical and mental) and social benefits of volunteering	2
Dunn et al. 2021 (p. 8)	Inform the public on the different volunteer roles and "highlight that not all require a substantial time commitment, specialist skills and resources, or involvement in dispatch activities"	5
Garrard et al. 2020 (p. 704)	Design information campaigns in target areas to provide more information on different control methods and their efficacy	5
Garrard et al. 2020 (p. 704)	Provide reimbursement (e.g. for obtaining a permit or training)	6

Harvey et al. 2016 (p. 17)	Focus on ecological protection aspects in outreach campaigns	4
Harvey et al. 2016 (p. 17)	In order to ensure realistic expectations in project participants, include all relevant information on the target species in the training materials (e.g. especially highlighting its low detectability)	5
Jubase et al. 2021 (p. 9)	Publicize volunteer groups and promote their activities online and via social media platforms	10
Jubase et al. 2021 (p. 9)	Create umbrella partnerships and a database of all groups in a wider region, to ensure better promotion and consequently volunteer recruitment	7, 9
Jubase et al. 2021 (p. p)	Connect volunteer groups and schools to promote education, awareness and future recruitment	3, 9
Jubase et al. 2021 (p. 10)	Ensure "better coordination and engagement between volunteers and mandated authorities" on all relevant matters	9
Krželj et al. 2020 (p. 14)	To ensure the best results of using social media platforms, due to differing preferencing in using them, analyze the volunteer demographics by nationality, age and gender	1, 10
Krželj et al. 2020 (p. 13)	Include local tourist services, to ensure better recruitment of foreign tourists in the volunteer campaigns	8, 9
Krželj et al. 2020 (p. 13)	Involve mass media in the outreach campaigns	10
Krželj et al. 2020 (p. 14)	Maintain continuous interaction with the public	2, 10
Krželj et al. 2020 (p. 14)	To ensure maintaining good relationship between the public and volunteer programs design detailed contents and offer the people a full "citizen scientist experience"	2, 3
Niemiec et al. 2016 (p. 8)	To better understand decisions to engage in IAS control actions, the "community-wide action context" should be examined, in addition to preferences of individual participants	5, 6
Niemiec et al. 2016 (p. 8)	Improve "residents' understanding of the collective risks posed by invasive species and how to properly manage invasive species"	4
Niemiec et al. 2016 (p. 8)	Organize community workshops where people would get the chance to work together in controlling the target species	3, 5
Pagès et al. 2018 (p. 18)	"Managers who wish to retain volunteers in the long-term should attempt to alleviate personal barriers to engagement, for example by ensuring that the physicality of the work, timing, and transport arrangements suit the volunteers they seek to involve"	2, 8
Pagès et al. 2018 (p. 18)	Projects should "provide experiences that foster the development of social bonding and/or connectedness to nature and attachment to places"	3
Pagès et al. 2019 (p. 16)	Project managers should aim to compartmentalize participant's roles, to ensure maximum efficiency and favor the recruitment of sufficiently qualified volunteers for each task	2
Pocock et al. 2020 (p. 724)	All project participants should be made aware of the potential repercussions of detecting the target IAS	5, 10
Pocock et al. 2020 (p. 727)	In order to maintain trust of the participants, use carefully moderated language when communicating about the project goals and activities	5, 10

Pocock et al. 2020 (p. 728)	Develop collaborative initiatives, formalizing responsibilities of different stakeholders	2, 9
Saavedra and Medina 2020 (p. 12)	All aspects of the project should be presented in a transparent manner	10
Stien and Hausner 2018 (p. 191)	Although potentially beneficial, financial incentives should be planned with care, to prevent crowding-out effects	6
Stien and Hausner 2018 (p. 192)	Create "social arenas" for socialization and sharing of experiences between different volunteer groups to promote engagement	3, 7, 9