



Fixing & Linking Our Wetlands (FLOW) Project:
Supplementary Review of Mink Monitoring
(2017 – 2021)

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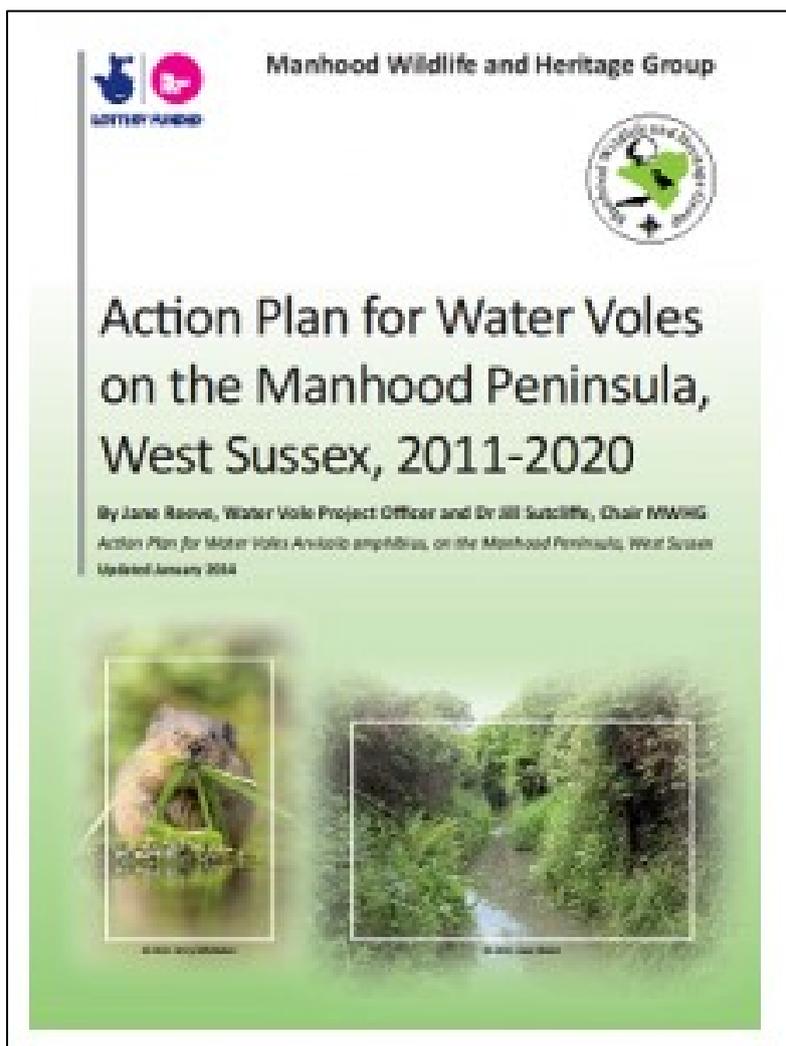
1 Introduction

1.1 Project Background

The Manhood Wildlife and Heritage Group (MWHG) was established by local community volunteers as a charity and now provides support to the local heritage and wildlife within the Manhood Peninsula (MP).

The MP is located on the south coast of England and forms part of the Chichester coastal plain – a mainly flat open landscape, dominated by intensively farmed arable fields, modern farm buildings, commercial horticulture, large glass houses and small settlements. The main areas of ecological importance on the MP are associated with the sea and several areas designated for wildlife. The terrestrial ecology of these designated areas is reliant upon a precarious and complex network of ditches, drains, rifes, small ponds scattered trees, hedgerows and the remnants of species-rich grassland habitats that once dominated the area.

The National Lottery Heritage Fund (NLHF) did much to support the early work of the MWHG, through a Big Lottery Community Wildlife Grant (award no. Big Lottery CWL/1/010379345), which was used to fund a project to survey record and protect its rare population of endangered and legally protected European water vole (*Arvicola amphibius*) and to support the production of an [Action Plan for Water Voles on the Manhood Peninsula](#).



Following the success of the European water vole project, a further award was then provided by the NLHF to support the MWHG with their 'Fixing and Linking Our Wetlands (FLOW)' project. This second project was motivated by the conclusions of Sir John Lawton's report (Lawton et al., 2010¹), which claimed that the restoration of sites and habitats needed to ensure that they were left in better condition, larger and linked up. The FLOW project was then initiated to overhaul and improve the drainage function and ecology of the wetlands and surface drainage within the Manhood Peninsula.

Through their recent experience with the water vole project, the MWHG were well placed to capitalize on their knowledge of working with volunteers and to harness the advantages gained from their well-established relationship with local landowners, as well as the MWHG's valuable understanding of wetlands and

¹ J.H., Lawton & Brotherton, Peter & V.K., Brown & C., Elphic & A.H., Fitter & J, Forshaw & R.W., Haddow & S., Hilbourne & R.N., Leaf & M.P., Southgate & Sutherland, William & T.E., Tew & J., Varley & G.R., Wynne. (2010). Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network.

associated ecological impacts. It was evident therefore, that the work with water voles would be integral to the wider aims of the FLOW project.

1.2 Project Aims and Objectives

One of the principal objectives for successful water vole management necessitates the regular and frequent monitoring of known local populations of this species and their supporting habitats, to enable the rapid identification of any non-native North American mink (*Neovison vison*) if they are present within the area. Successful monitoring requires an adequate level of skill and needs to be undertaken at a sufficient scale. The non-native and invasive North American mink pose a significant predation threat to European water vole. Regular monitoring for mink also provides an opportunity to record important data on the presence, activity level, population size and behaviour of any European water voles within the locality of the monitoring site, together with an opportunity to regularly check on the physical, environmental and ecological health of the habitat within that area.

It was clear that in order for the Mink Monitoring Programme to be successful, it would require the time of staff, dedicated volunteers and expert trainers, along with the co-operation of local land managers.

Twelve monitoring rafts were originally obtained and deployed, with ten currently remaining operational (see Figures 1 and 2, below). Eight volunteers were trained to carry out regular inspections. Protocols were put in place to manage health and safety, collate records and to ensure a rapid response was made to any indications that North American mink may be in the vicinity of the monitoring sites or elsewhere within the MP. Inspections were carried out on each raft every fortnight from March to September and from November to mid-January. During the rest of the year inspections were conducted on a weekly basis, as at these times it is known that mink become more mobile.

Figure 1. Information about each raft:

R1	Lagness Corner
Location	SU 89279 01905
Dates of situation	In position since before 2016 – an original WSCC mink monitoring site to present day
Species noted	Water vole, Rat, Stoat, Squirrel, Mallard duck
R2	Lakeside gravel pits
Location	SU 87714 03000 (Before 2016) New position SU 87634 02790
Dates of situation	In position since before 2016 – an original WSCC mink monitoring site New site from 21 Jan 2019 to present day
Species noted	Weasel / stoat, Moorhen
R3	Chichester Canal
Location and Dates of situation	SU 85944 02088 2016 until Aug 2018 and then SU 86334 02195 until May 2019

	In position since before 2016 – an original WSCC mink monitoring site and then moved 6 Aug 2018 as access to site difficult and relocated along the canal. New situation lasted until May 2019 when raft damaged by cattle and removed. No satisfactory site along Chichester canal subsequently found.
Species noted	Moorhen, Mallard duck, Water vole

R4	Chichester Marina
Location	SU 83653 01103
Dates of situation	Since before 2016 – an original WSCC mink monitoring site to present day
Species noted	Squirrel, Rat, Stoat, Mink

R5	Pagham Rife, Barfoots
Location	SU 89051 00495
Dates of situation	January 2016 to present day
Species noted	Bird (droppings on raft roof), Moorhen, stoat, rats. mink

R6	Earnley Flood Channel
Location	SU 81816 97172
Dates of situation	June 2016 to present day
Species noted	Water vole

R7	Bremere Rife, Chalder Farm, Sidlesham
Location	SZ 87131 99437
Dates of situation	In position since before 2016 – an original WSCC mink monitoring site to present day
Species noted	Water vole

R8	Sidlesham Sewage Works
Location	SZ 85110 96128
Dates of situation	In position since before 2016 – an original WSCC mink monitoring site to present day

Species noted	
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R9	Broad Rife and Bunn Leisure, Selsey
Location	SZ83809 93984
Dates of situation	Feb 2016 – 2017 taken out of water by EA as work carried out of rife, then returned, to present day
Species noted	Water Vole, Moorhen

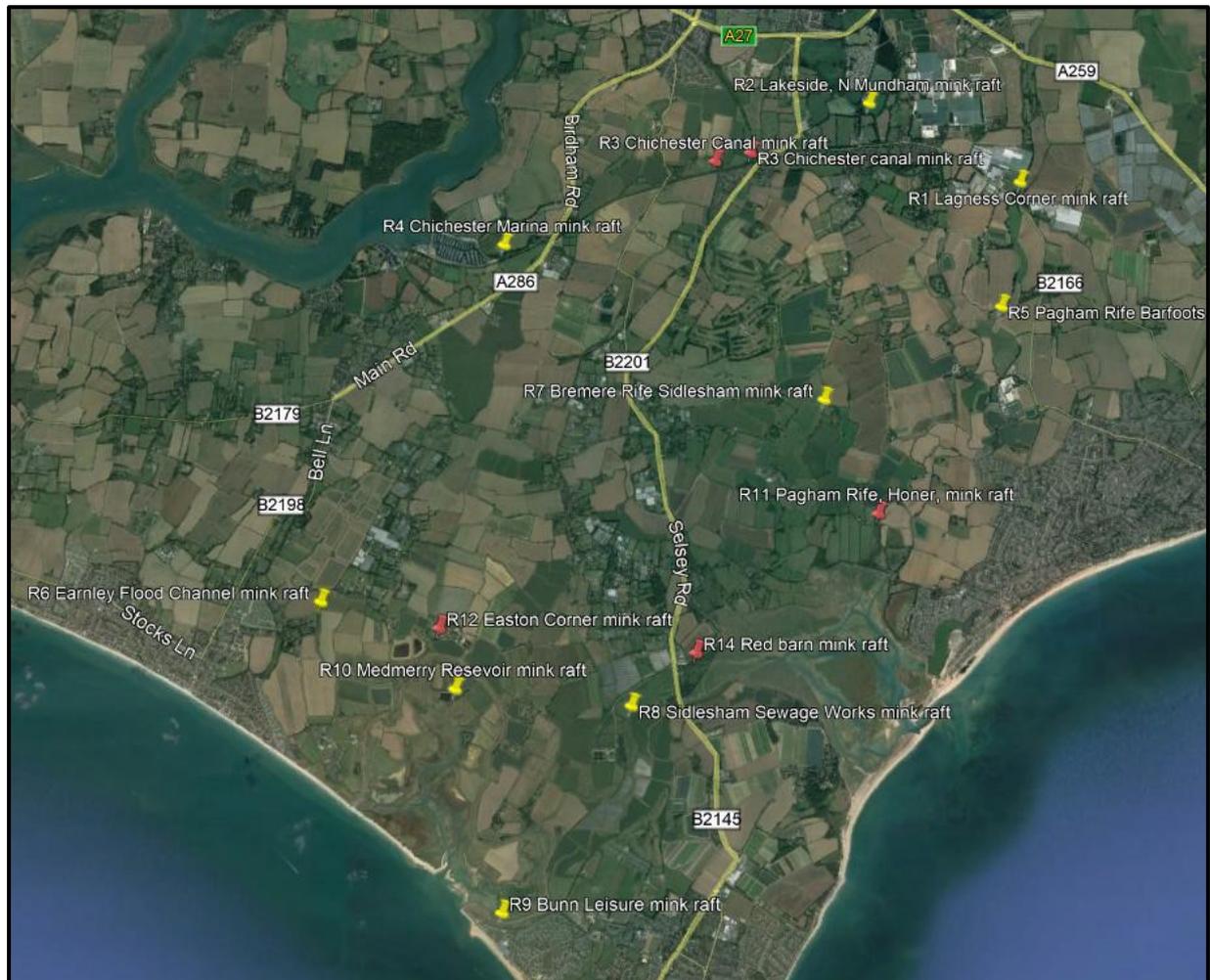
R10	Medmerry Reservoir
Location	SZ 83260 96271
Dates of situation	24 April 2017 to present day
Species noted	Water vole, Moorhen

R11	Pagham Rife at Homer Farm
Location	SZ 87707 98206
Dates of situation	16 Nov 2017 – 13 Dec 2017 – put in as a response to a mink sighting and then removed
Species noted	Mink, Bittern, Moorhen

R12	Medmerry, Easton corner
Location	SZ83078 96911
Dates of situation	13 August 2018 – 07 Oct 2019 as difficult to monitor and no signs for a long time.
Species noted	None noted

R14	Near Red Barn Rife
Location	SZ 85770 96701
Dates of situation	05 - 12 November 2018 and removed as inundated at high tide
Species noted	Moorhen and wren

Figure 2. Locations for each raft indicated by map marker pins – red markers show rafts that are no longer present or in service and yellow maker pins represent operational rafts.



1.3 Project Spending and Additional Funding

The procurement of specialist training and some equipment, such as special rafts, mink traps, waders, baskets, modelling clay, oasis, cordage, ground anchors, trail cameras etc., was carried out. Project expenditure between September 2016 and May 2020 came to approximately £1,747.32. As no specific budget lines within the FLOW project were provided to support mink monitoring, the money to fund this part of the project was raised from other sources (see Table 1).

Table 1. Funding:

Date	Source	Amount
2017 and 2018	Barfoots	2 x £1,000.00
2017 and 2018	Vitacress	2 x £500.00
2018	RSPB	£2,000.00 (also agreed to pay for a new raft if needed and to provide a dispatching training course)
Total		£5,000.00

1.4 Project Results

Throughout the project, consistent monitoring has resulted in the identification of the possible presence of North American Mink on a total of eleven occasions during 2016, 2017 and 2020. Whilst some of these animals were recorded on camera, no animals were trapped. In most instances, once the traps had been deployed and set, no further evidence of North American mink was found. This suggested that North American mink have been transitory within the area. On three occasions Eurasian otter (*Lutra lutra*) were also detected.

Continuity within the project was good, with the majority of scheduled checks taking place as planned, until the outbreak of Covid-19 in 2020, which led to a cessation of monitoring for the rafts located within the RSPB controlled land areas.

Three of the original rafts were removed from service part way through the project period due to damage or difficult access. Raft number R11 was only installed for four weeks during 2017, as a temporary measure in response to a possible sighting of North American Mink at that deployment location.

Whilst it is evident that the project hasn't succeeded in removing North American Mink, it is possible that they may have been disturbed by the attempts to trap them, which has perhaps encouraged them to move on quickly and without causing any significant reduction in the local European water vole population.

2 Evaluation

2.1 Purpose of the Evaluation

This evaluation is intended as an independent review to supplement the primary end-of-project review for the FLOW project.

2.2 Evaluation Criteria

The objectives for the mink monitoring part of the FLOW project were not set out within the main project plan. However, these are presented in Section 1.2 above and are also summarized below for convenience:

- To enable the rapid identification of any non-native North American mink (*Neovison vison*), when they are present within the area.
- To provides an opportunity to detect important indications on the presence, activity level, population size and behaviour of any European water voles within the locality of the monitoring site.
- To regularly check on the physical, environmental and ecological health of the habitat within that area.

This evaluation has sought to identify where and how the mink monitoring component project has met the relevant NLHF specified outcomes listed below:

1. A wider range of people will be involved in heritage (This is a mandatory outcome. Every project we fund must achieve our mandatory outcome as a minimum.)
2. people will have greater wellbeing.
3. people will have developed skills.
4. demonstrate that long-term environmental sustainability and inclusion has been built into the project plan.
5. heritage will be in better condition.
6. people will have learnt about heritage, leading to change in ideas and actions.

2.3 Evaluation Methods

The evaluation for the success of the project, has relied heavily on feedback from stakeholders obtained through invited comments and by using an anonymized online questionnaire.

The anonymized online questionnaire was sent out to eight people, which included staff and volunteers. All invitees participated in the survey.

2.4 Constraints and Limitations

The scale of this evaluation is necessarily proportionate to this component of the FLOW project and as such it has relied on a small sample size, for gathering feedback data.

This evaluation has sought to relate the results of the mink monitoring project to the some of the NLHF specified outcomes. However, it should be noted that many of these will have been addressed more fully and more effectively in the main FLOW final project review.

2.5 Evaluation Outcomes

The full results of an online questionnaire and additional feedback from stakeholders are shown in Appendix 1.

The people taking part in this project comprise retired local volunteers and employed wildlife professionals.

Respondents to the consultation believed that the project implementation was easy (25%), very easy (25%) or neither easy nor difficult (50%).

Whilst 37.5% believed they would benefit from further training for this project, 87.5% who had been asked to explain the project all felt qualified to do so.

When asked how satisfied they were with the support they had received from the project management team, 87.5% of respondents replied that they were very satisfied, with 87.5% feeling that the project was successful and the remaining 12.5% indifferent. 100% want the project to continue and 87.5% would like it to be expanded.

When asked what improvements would be good, respondents suggested better design of mink rafts; remote monitoring when traps are set out; greater public awareness; more younger and able volunteers; more sites to monitor; a higher density of monitoring over the same area, local government support to continue the project indefinitely; more precise information on mink trapping and training on dispatching mink.

87.5% of respondents lived on the MP, with 100% saying that they were likely to continue to support the project.

When asked how the project had contributed to their overall sense of wellbeing, 37.5% said it had contributed 100%, 37.5% said it had contributed 80%, 12.5% said it had contributed 60% and 12.5% said it had contributed 40%.

When asked how they became involved with this project, 80% were already supporting MWHG with 12.5% responding to an advertisement for help.

When asked what single aspect of the project they believed had been the most significant for them personally, answers included doing something towards correcting mistakes made in the past; being around nature; learning about wildlife; Joining a team of people with a common interest and an ability to support local wildlife; having an opportunity to go into countryside to do something useful and see signs

of wildlife other than mink; especially water voles and learning more about the impact of non-native species.

When asked why they believed this aspect of the project had been the most significant for them, the replies included managing as a small team, which they were able to follow throughout the duration of the project; eliminating mink which cause damage to native wildlife; because it is just magical; because it has opened a mind to how precious our planet is and how we must preserve and encourage all living species; it has provided an opportunity to become actively involved with a local wildlife project; which is believed to be making a positive difference; being able to continue essential mink monitoring when others retired; because it satisfies an interest in all forms of wildlife and provides a better understanding of the harm that mink can cause.

87.5% of respondents reported that they had taken part in training specifically for this project and 100% reported that they considered the training to be adequate.

More general comments have suggested that most participants have enjoyed taking part in the project. Whilst concerns have been raised over the physical challenges of the terrain for some, the time pressures of weekly checking and ineffective capture techniques, it has been acknowledged that the rafts have proven to be effective in identifying mink and the project has been well run.

Opportunities have been identified to improve the training and methods used for capturing and dispatching of mink and increasing the number of rafts and volunteers within the existing area.

Between 27 January 2017 and 20 May 2020 the project recorded 769 volunteer hours.

3 Conclusion

The mink monitoring project successfully identified the presence of North American mink using the planned techniques. Efforts to trap and dispatch mink was unsuccessful. However, it is likely that the attempt to trap was instrumental in persuading the mink to move on, as they were not usually present for long after a trap had been deployed. Any water vole activity and changes to habitat condition were effectively recorded.

The project was able to engage volunteers that had not previously had the opportunity to learn about water vole or the potential impact of North American Mink. All participants claimed that the project had enhanced their wellbeing. Most had learned new skills and valued their contribution to the long-term environmental sustainability of the local area. The project aims are intended to ensure that the natural heritage will be in better condition than it would otherwise have been. The project has provided an opportunity to teach people about the natural heritage of the area which it is hoped will lead to changes in ideas and actions.

It is desirable for that the project to be continued indefinitely. This evaluation has highlighted opportunities for improving access, the provision of additional monitoring sites and volunteers, and additional training on trapping and dispatching of mink.

Figure 3. Mink monitoring raft R6 showing evidence of an active water vole feeding station present.



4 References

HM Government (1981). Wildlife and Countryside Act 1981 (as amended). Available online at: <http://www.legislation.gov.uk/ukpga/1981/69/contents>.

HM Government (2000). *Countryside and Rights of Way Act, 2000*. Available online at: <https://www.legislation.gov.uk/ukpga/2000/37/contents>.

HM Government (2017). *Conservation of Habitats and Species Regulations 2017* (as amended). Available online at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>.

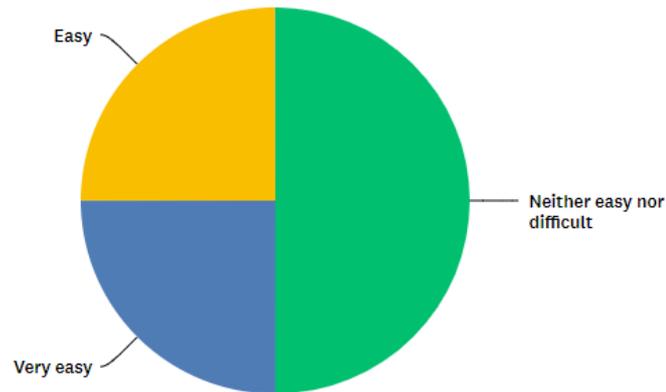
<https://www.heritagefund.org.uk/good-practice-guidance/evaluation-guidance> (online).

5 Appendix 1 – Consultation Feedback

Q1.

How easy do you think the project has been to implement?

Answered: 8 Skipped: 0

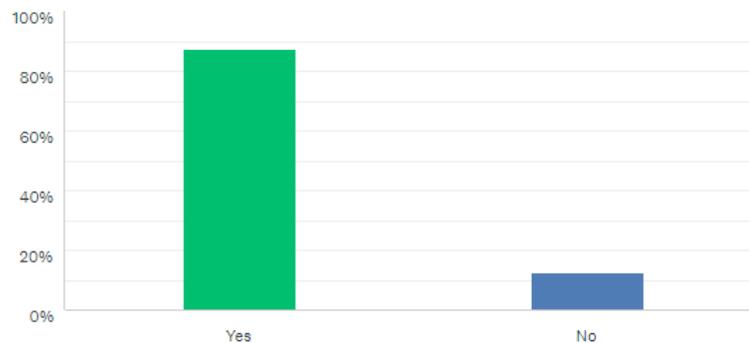


ANSWER CHOICES	RESPONSES	
▼ Neither easy nor difficult	50.00%	4
▼ Very easy	25.00%	2
▼ Easy	25.00%	2
▼ Difficult	0.00%	0
▼ Very difficult	0.00%	0
TOTAL		8

Q2.

Have you ever been asked to explain the project and its purpose to anyone?

Answered: 8 Skipped: 0

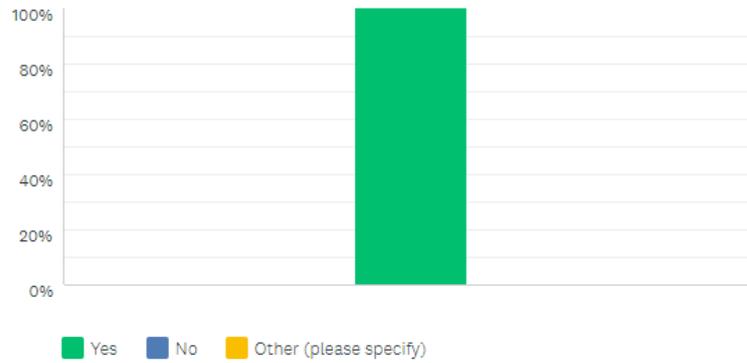


ANSWER CHOICES	RESPONSES	
▼ Yes	87.50%	7
▼ No	12.50%	1
TOTAL		8

Q3.

If you answered yes to the previous question, did you feel qualified to fully explain the project and its purpose?

Answered: 7 Skipped: 1

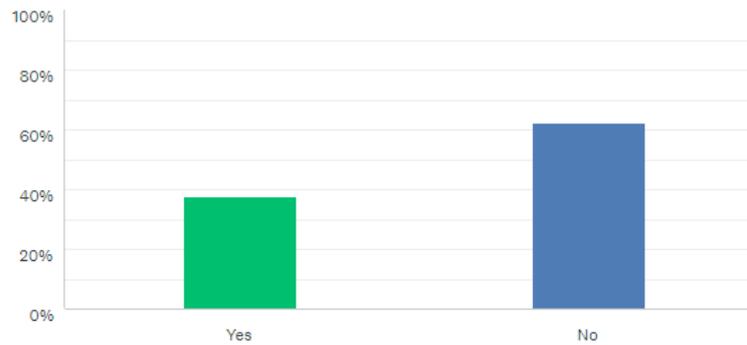


ANSWER CHOICES	RESPONSES	
▼ Yes	100.00%	7
▼ No	0.00%	0
▼ Other (please specify)	Responses 0.00%	0
TOTAL		7

Q4.

Do you think you would benefit from further training for this project?

Answered: 8 Skipped: 0

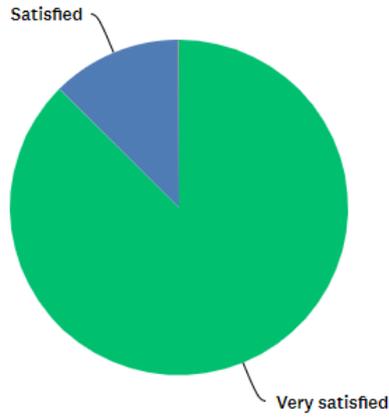


ANSWER CHOICES	RESPONSES	
▼ Yes	37.50%	3
▼ No	62.50%	5
TOTAL		8

Q5.

How satisfied were you with the support that you received from the project management team?

Answered: 8 Skipped: 0

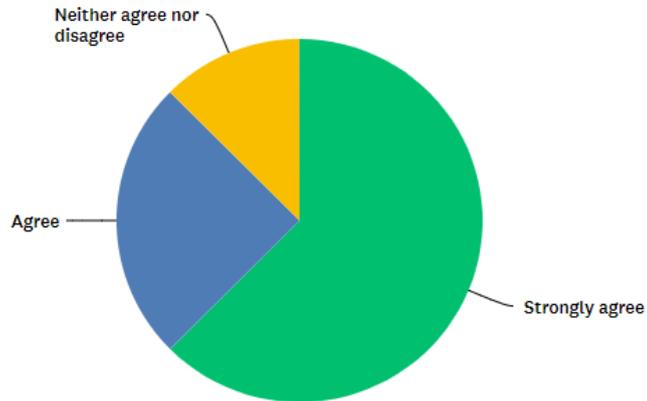


ANSWER CHOICES	RESPONSES
Very satisfied	87.50% 7
Satisfied	12.50% 1
Neither satisfied nor dissatisfied	0.00% 0
Dissatisfied	0.00% 0
Very dissatisfied	0.00% 0
TOTAL	8

Q6.

Do you think the project has been successful?

Answered: 8 Skipped: 0

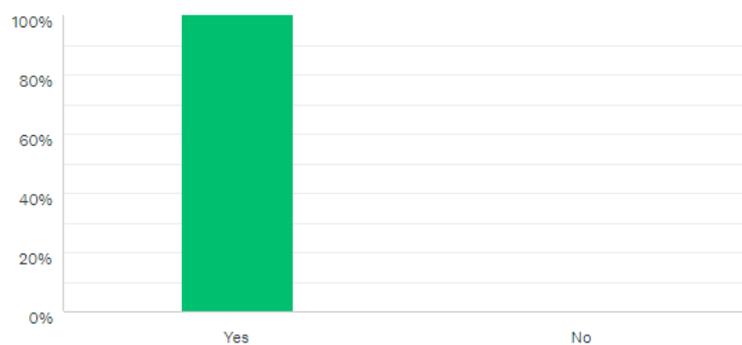


ANSWER CHOICES	RESPONSES	
Strongly agree	62.50%	5
Agree	25.00%	2
Neither agree nor disagree	12.50%	1
Disagree	0.00%	0
Strongly disagree	0.00%	0
TOTAL		8

Q7.

Do you think the project should continue?

Answered: 8 Skipped: 0

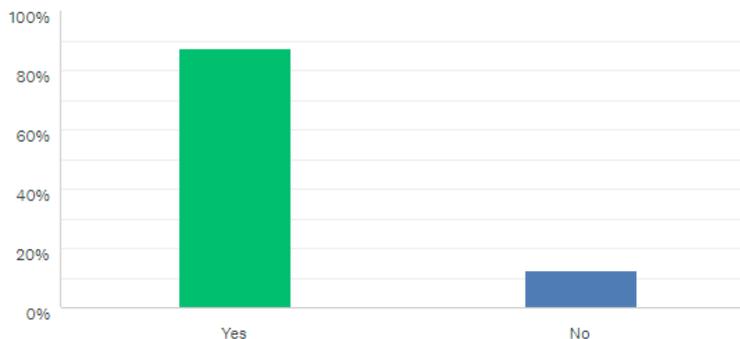


ANSWER CHOICES	RESPONSES	
Yes	100.00%	8
No	0.00%	0
TOTAL		8

Q8.

Do you think the project should be expanded?

Answered: 8 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	87.50%	7
No	12.50%	1
TOTAL		8

Q 9. What do you think you would like to see changed to improve the project?

Answers:

Better design of mink rafts.

Introduction of remote monitoring when traps are set out.

More sites to monitor.

More public awareness and more young people volunteering.

I would like to see a higher density of monitoring over the same area and local government support to continue the project indefinitely.

More able-bodied people to help.

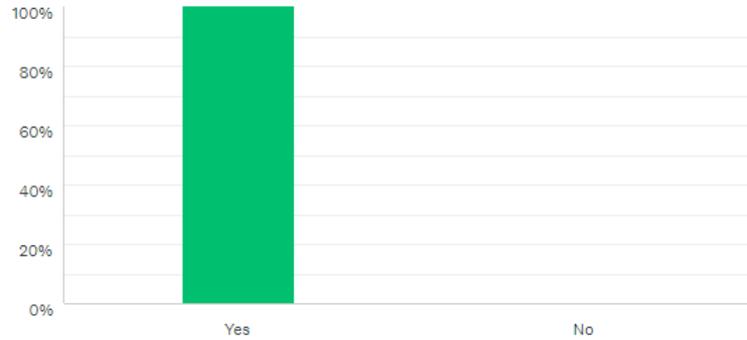
More precise information on mink trapping especially whether to bait traps and how long to continue trapping.

Training on dispatching.

Q10.

Are you likely to continue to support the project if it continues?

Answered: 8 Skipped: 0

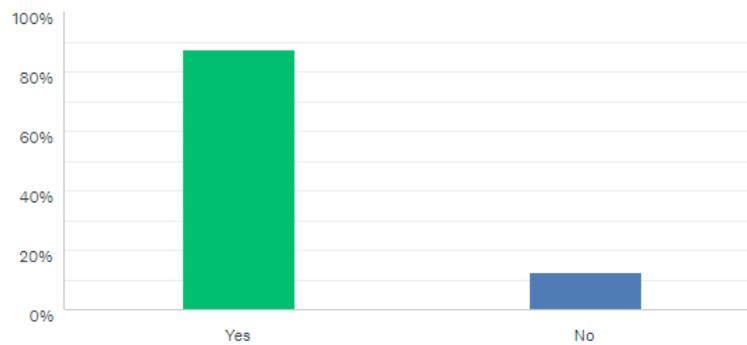


ANSWER CHOICES	RESPONSES	
▼ Yes	100.00%	8
▼ No	0.00%	0
TOTAL		8

Q11.

Do you live on the Manhood Peninsula?

Answered: 8 Skipped: 0

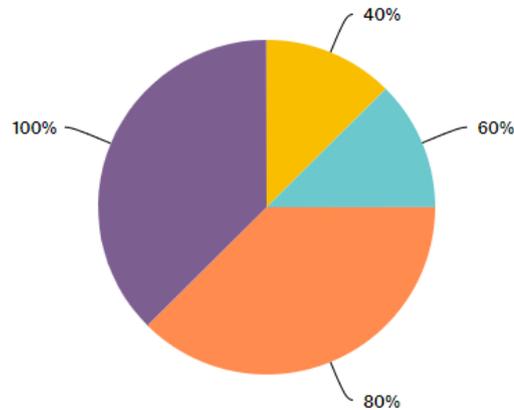


ANSWER CHOICES	RESPONSES	
▼ Yes	87.50%	7
▼ No	12.50%	1
TOTAL		8

Q12.

On a percentage scale of 0% to 100%, how has the project contributed to your overall sense of wellbeing?

Answered: 8 Skipped: 0



ANSWER CHOICES	RESPONSES	
▼ 0%	0.00%	0
▼ 20%	0.00%	0
▼ 40%	12.50%	1
▼ 60%	12.50%	1
▼ 80%	37.50%	3
▼ 100%	37.50%	3
TOTAL		8

Q13. How did you become involved with this project?

Answers:

I was already a member of MWHG so progressed to FLOW seamlessly.

MWHG and RSPB membership.

Weekly or fortnightly monitoring.

I volunteered following an advert.

I was a volunteer with the Manhood Wildlife and Heritage Group and have specialist skills as a naturalist, which I wanted to use to support my local wildlife.

Through MWHG and RSPB.

Involved in general conservation work with MWHG when need for volunteers for mink monitoring arose due to departure of person who had been checking all mink rafts.

Through being a volunteer with the MWHG.

Q14. What single aspect of the project do you believe has been the most significant for you personally?

Answers:

Mink monitoring.

Doing something towards correcting mistakes made in the past.

Always the nature around.

Learning about wildlife.

Joining a team of people with a common interest and an ability to support local wildlife.

Mink monitoring.

Opportunity to go into countryside doing something useful and seeing signs of wildlife other than mink, especially water voles.

Learning more about the impact of non-native species.

Q15. Why is this?

Answers:

It was a project which we managed as a small team and followed throughout the duration of the project.

Eliminating Mink which damage our native wildlife.

Just magical.

Because it has opened my mind to how precious our planet is and how we must preserve and encourage all living species.

It has provided me with the opportunity to become actively involved with a local wildlife project, which I believe is making a positive difference.

Being able to continue essential mink monitoring when others retired.

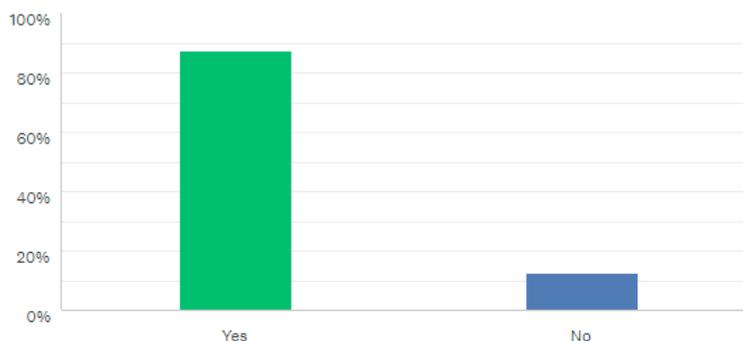
Interest in all forms of wildlife.

Have a better understanding of the harm that they can cause.

Q16.

Have you ever taken part in any training specifically for this project?

Answered: 8 Skipped: 0

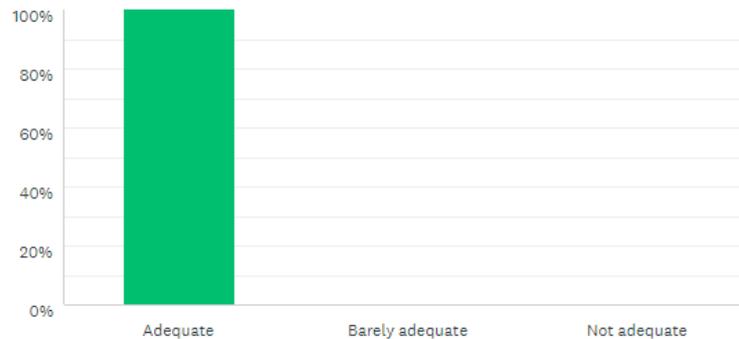


ANSWER CHOICES	RESPONSES	
Yes	87.50%	7
No	12.50%	1
TOTAL		8

Q17.

If you answered yes to the previous question, please state how adequate you think the training was?

Answered: 7 Skipped: 1



ANSWER CHOICES	RESPONSES	
▼ Adequate	100.00%	7
▼ Barely adequate	0.00%	0
▼ Not adequate	0.00%	0
TOTAL		7

Additional feedback received from stakeholders is show below:

Alex, mink monitoring volunteer since January 2019 to August 2019, attended a training course in March 2019 provided by SDNP.

"I understood the importance of mink monitoring but questioned whether having the rafts in the same places for a long time and without camera traps was the best way of monitoring. I am basing this on visiting the traps for approx 6 months with no signs of mink (good I know, but reliable info? Not sure)."

Christine, mink monitoring volunteer (also a FLOW and RSPB volunteer) since March 2017 who has attended to training courses (September 2016 and March 2017).

"I've immensely enjoyed being involved with the mink raft monitoring - come rain, wind or sunshine! I think it's been a very worthwhile project as we've not only helped to monitor the water vole and mink populations on the Manhood Peninsular but have also been able to keep an all year round record of water levels and flow and report on the flora and fauna we've seen on our visits to the various sites.

In the main the sites are easily accessible although the steep banks on some can be treacherous and need to be negotiated with care. The one big problem I've found is the weight of the rafts - most of the rafts can be checked in situ but one needs to be regularly hauled up a steep slippery bank - a lighter more manageable design would be much appreciated in this situation.

On the whole the project has been well managed and resourced, and we've had plenty of support and encouragement from Jane and her team."

Sheila, mink monitoring volunteer (also a FLOW and RSPB volunteer) since March 2017 who has attended to training courses (September 2016 and March 2017).

"I found monitoring the rafts enjoyable and interesting, though quite demanding when needed weekly. Training and equipment were very adequate and advice and support always available. There was always a concern when evidence of mink was found, and a trap had to be set as daily monitoring could be difficult. I understand more sophisticated traps are now available which can send a remote signal to

mobile phones if a trap is sprung and these would be a big help. Camera coverage of the traps when used proved very rewarding and it would be good to have more of this. Changing water levels could make access difficult at some sites, especially if the raft needed pulling out, but I don't know how this can be overcome."

Ian, mink monitoring volunteer since September 2016 after attending a training course provided by FLOW.

"I have very much enjoyed my time checking the three mink rafts in the North Mundham / Runcton area. It is a very valuable exercise in not only increasing awareness of mink in the area but also the presence of other wildlife, including water voles. All necessary equipment has been provided.

In future, to improve success in trapping mink, I suggest that we follow the advice of the Game and Wildlife Conservation Trust by not using bait or scent lures on the rafts and, if unsuccessful, reverting back to monitoring after just a few days."

Ivan Lang, RSPB Warden at Pagham Harbour Nature Reserve and more recently Medmerry re-alignment.

"I have been involved in monitoring mink on the peninsula since 2005 when the WSCC was running the program. The success of the monitoring and the subsequent control of mink on the peninsula has led to an increase in the water vole numbers in the area as well as numerous other benefits to the wildlife. When this project was picked up by the FLOW project it enabled the continuation of an important aspect of monitoring/preventing the spread of mink back on to the peninsula and undermining many years of active work to benefit local wildlife from the detrimental effects of mink present in the ecosystem. This absence of mink from the peninsula has undoubtedly aided the re-colonisation of the western peninsula at Medmerry post construction. The rafts in strategic positions around the peninsula have been successful in locating mink especially in tandem with cameras and this has allowed the target approach to control the individuals. These rafts recorded the first possible otter on the peninsula for over 50 years. The main issue was that the lack of success in trapping the odd individual mink as they seemed to have a large territory and was difficult to calculate the best timing to place down the live traps. Maybe a few extra rafts out in the vicinity of the first detecting of these individuals could have increased the chances of capture."

End.