

Reptile Survey

Petersfield Heath, Hampshire

January 2019

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Reptile Survey

Petersfield Heath, Hampshire

January 2019

South Downs National Park Authority

Western Downs Area Office

Empshott

Liss

Hampshire

GU33 6HT

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Non-technical Summary

This reptile report forms part of a suite of protected species surveys undertaken by Phlorum Ltd, which were commissioned by the South Downs National Park Authority and carried out across land at Petersfield Heath, Hampshire. A series of reptile surveys were carried out to establish the presence or likely absence of reptiles within the area, and to provide information on their likely population and distribution.

The site is situated at Petersfield Heath in Hampshire, to the south-east of Petersfield, approximately 1.3km south-east of Petersfield town centre. The site comprised Heath Pond in the south-west of the site together with areas of amenity grassland, scattered trees, heathland, woodland, scrub and ditches.

The main findings of the survey are as follows:

- Three broad areas within Petersfield Heath were identified as offering suitable reptile habitat; south west of the cricket pitch, east of the car park and parallel to the B2199 (see Figure 1 in Appendix A). Habitats present within the survey areas predominantly included areas of rough grassland, heathland and woodland edge.
- Artificial refugia were laid out at approximately 15m intervals throughout the identified areas of suitable reptile habitat within the site. A total of approximately 80 refugia were used, equating to a density of 14.5 per ha.
- A total of seven survey visits were undertaken between the 11th and 26th September 2018. Refugia were checked during appropriate weather conditions and at appropriate times and followed best practice guidelines.
- The survey results determined the presence of a low population of slow worms (*Anguis fragilis*) and an exceptional population of common lizard (*Zootoca vivipara*). There were no sightings of grass snake (*Natrix helvetica*) or adder (*Vipera berus*) but this survey does not confirm the absence of these relatively common and widespread species at this site. Although the site offers the sandy heathland habitat within the distribution range for sand lizard (*Lacerta agilis*) and smooth snake (*Coronella autriaca*) these distinctive rare species are now very restricted and their absence from the survey results is expected.
- On the basis of the survey results, the estimated population of reptiles inhabiting suitable habitat within the site could be 120 adult common lizards and 40 adult slow worms. However, this is an approximate guide only and the true numbers may vary.

- The absence of grass snake and adder from the survey results does not provide conclusive evidence that these species are not present at this site. Longer term surveys undertaken throughout the reptile survey season might provide additional information.
- Public access to the site is unrestricted and it was noted that approximately 25% of the refugia were removed completely and/or redistributed by members of the public during the survey period, which undoubtedly had an effect on the survey results.
- The Conclusions and Recommendations section of this report discusses the survey results and offers management considerations with regard to reptiles at this site.

1. Introduction

Background

- 1.1 This reptile survey forms one of a suite of protected species surveys undertaken by Phlorum Ltd., which were commissioned by the South Downs National Park Authority across land at Petersfield Heath (hereafter referred to as “the site”).
- 1.2 The survey identified three broad areas of suitable reptile habitat within the site. During September 2018 seven site visits to survey these areas for reptiles were completed.
- 1.3 The report provides an assessment of the status of reptiles on the site, providing information on the species presence/likely absence and distribution.

Site Description

- 1.4 The survey site is situated at Petersfield Heath, Hampshire, to the south-east of Petersfield, approximately 1.3km south-east of Petersfield town centre. The site can be accessed on foot from many points but the car park is situated to the south of the site and accessed via the B2146 Sussex Road.
- 1.5 The site comprised Heath Pond in the south-west in addition to areas of amenity grassland, scattered trees, heathland, woodland, scrub and ditches. Buildings within the site area included the ‘Plump Duck Coffee’ shop, ‘Little School by the Lake’ day care centre and a building associated with the cricket pitch.
- 1.6 The site is predominantly encircled by residential properties forming the outskirts of Petersfield with the exception of the southern corner of the site where Petersfield pay and play golf course, a small block of heathland and a large arable field are adjacent to the site.
- 1.7 The National Grid Reference for the centre of the site is SU75493 22929. The site extends over approximately 35.6 hectares (ha).

2. Methodology

Data Search

- 2.1 Records for reptiles within a 2km radius of the site were obtained from the local records centre (HBIC, 2019).

Reptile Survey

Presence/Absence Survey

- 2.2 The survey protocol followed accepted standards for reptile surveys as set out in Froglife (1999), Hill et al (2005) and English Nature (2004).
- 2.3 The survey involved a combination of visually searching for reptiles (direct observation) and the use of artificial refugia.
- 2.4 Refugia comprised individual 0.5×1m (approximately) sections of roofing felt. These were laid out at approximately 15m intervals throughout the areas of suitable reptile habitat. Potentially suitable reptile habitat within the survey area consisted of a mosaic of rough grassland, heathland and woodland edge. A total of approximately 80 refugia were used throughout the suitable areas, equating to a density of 14.5 per ha.
- 2.5 The artificial refugia were placed around the site on the 21st August 2018 throughout three areas (see Reptile Survey Map in Appendix A) which had been identified as suitable reptile habitat. This allowed the refugia a three-week period to bed down and develop favourable conditions relating to humidity and temperature gradients, whilst simultaneously allowing reptiles a chance to find and use them, before recording started.
- 2.6 A total of seven survey visits were undertaken between the 11th and 29th September 2018. Although reptiles are generally active between March and October the optimum months for surveying are considered to be April, May and September as during these months it takes longer for reptiles to become active and they are more likely to be encountered basking. These are the months immediately before and after hibernation. Refugia were checked during appropriate weather conditions, that is, where temperatures ranged between 9°C and 20°C with little rain or wind. Visits were carried out, where possible, between the hours of 08.30-11.00 or 16.00-18.30, which are the optimum times for recording reptiles, although the time of day varied slightly according to weather conditions.

Population Size Estimate

- 2.7 An assessment of the reptile population size is based on Froglife (1999) guidance which requires a minimum of 20 repeat survey visits. Population sizes are then assigned to one of three categories (Low, Good or Exceptional) based on the peak count of individuals for each species across all the visits.
- 2.8 Following current guidance (Froglife, 1999) seven visits were completed to establish reptile presence. Froglife provide a table, shown here as Table 1, which can be used to provide a population assessment based on the maximum number of adults seen by observation and/or under refugia (at a density of up to 10 per hectare), by one person in one day. A higher density of 14.5 refuge sheets per ha was employed at the site, and therefore it is considered likely that the survey data is sufficient to enable a population estimate to be made, although it is important to note that an increased density of reptile sheets does not necessarily correlate with more robust survey results.

Table 1: Population score (Froglife, 1999).

Species	Low Population	Good Population	Exceptional Population
Adder	<5	5-10	>10
Grass Snake	<5	5-10	>10
Common Lizard	<5	5-20	>20
Slow Worm	<5	5-20	>20

Constraints

Reptile Survey Constraints

- 2.9 The survey was carried out within the recommended optimum survey period in suitable weather conditions, and was considered sufficiently rigorous to determine the presence, likely absence and distribution of reptiles within the site at the time. However, the surveys were entirely conducted in September and therefore could miss reptiles present at other times of the year.
- 2.10 Public access to the site is unrestricted and it was noted that approximately 25% of the refugia were removed completely and/or redistributed by members of the public during the survey period.

3. Results

Data Search

- 3.1 The data search returned records (post 2004) for three different species of reptile; slow worm (*Anguis fragilis*), grass snake (*Natrix helvetica*) and adder (*Vipera berus*) (HBIC,2019). The closest records are for slow worm recorded at the site in 2005.

Presence/Absence Survey

- 3.2 The survey determined the presence of a low population of slow worms (*Anguis fragilis*) and a good population of common lizards (*Zootoca vivipara*). There were no sightings of grass snake (*Natrix helvetica*) or adder (*Vipera berus*) but this survey does not confirm the absence of these relatively common and widespread species at this site. Although the site offers the sandy heathland habitat within the distribution range for sand lizard (*Lacerta agilis*) and smooth snake (*Coronella autriaca*) these distinctive rare species are now very restricted and their absence from the survey results is expected.
- 3.3 The area to the south west of the cricket pitch, in the north of the site, appeared to be less disturbed by the public and the refugia there returned regular records for reptiles. Further survey effort in this area using more abundant and widespread refugia could potentially result in higher population estimates for species known to be present on the site, as well as potentially returning records for additional reptile species such as adder not encountered during these surveys.
- 3.4 The area closest to the car park also returned regular reptile records which was expected as it contained the highest number of refugia.
- 3.5 The area closest to the B2199 returned less frequent reptile records. Two possible factors may have contributed to this; firstly, and anecdotally, this area showed higher levels of disturbance to the refugia from the public, and secondly it had a less diverse habitat structure with more rough grassland and less heathland vegetation.
- 3.6 Common lizards were occasionally directly observed in other parts of the site in the east where no refugia had been placed.
- 3.7 The distribution of artificial refugia within the site is presented on the Reptile Survey Map in Appendix A and full survey results are presented in Appendix C. A summary of the results is displayed in Table 2 below.

Table 2: Summary of reptile survey results (with peak adult counts per species per visit in red).

Date	Slow Worm		Common Lizard		Grass Snake		Adder	
	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
11/09/2018	-	-	3	-	-	-	-	-
14/09/2018	-	-	7	2	-	-	-	-
17/09/2018	-	-	4	-	-	-	-	-
19/09/2018	1	3	1	2	-	-	-	-
21/09/2018	-	-	1	1	-	-	-	-
24/09/2018	2	-	9	3	-	-	-	-
26/09/2018	1	-	5	-	-	-	-	-

Population Size Assessment






- 3.8 Referring back to Table 1 it can be seen that the peak count of 9 adult common lizard on 24th September 2018 equates to a good population classification for this species, while for slow worm the peak count of 3 adults on 19th September 2018 is a low population classification (Froglife, 1999).
- 3.9 The true population size is more difficult to estimate although guidance from Froglife (1999) suggests that peak counts from refuge surveys encounter only c.10% of individuals, albeit with a lower sampling effort than employed here.
- 3.10 On this basis, the estimated population of reptiles inhabiting suitable habitat within the site could be 90 adult common lizards and 30 adult slow worms. However, this is an approximate guide only and the true numbers are likely to vary.

4. Conclusions and Recommendations

Conclusions

- 4.1 The reptile survey area was for land across Petersfield Heath in Hampshire. Habitats present within the reptile survey areas predominantly included rough grassland, heathland and woodland edge.
- 4.2 The reptile surveys were undertaken between the 11th and 26th September 2018 during suitable weather conditions and following accepted best practice guidelines as set out by Froglife (1999), Hill et al (2005) and English Nature (2004).
- 4.3 The areas surveyed were considered to provide the most optimal reptile habitat on site, with a habitat mosaic and vegetation structure suitable to support reptiles. Approximately 80 refugia were laid out across an area of approximately 5.5 hectares resulting in a total coverage of around 14.5 refugia per hectare.
- 4.4 The survey found a low population of slow worms and a good population of common lizards within the reptile survey areas located in the central and southern parts of the main site.
- 4.5 The absence of grass snake and adder from the survey results does not provide conclusive evidence that these species are not present at this site. Longer term surveys undertaken throughout the reptile survey season might provide additional information.
- 4.6 Public access to the site is unrestricted and it was noted that approximately 25% of the refugia were removed completely and/or redistributed by members of the public during the survey period.

Recommendations

- 4.7 Reptile habitats require a mixture of elements:
 -  A patchy habitat structure providing open areas for basking close to sheltered vegetated areas used as cover from predators and to provide shade when required;
 -  A close proximity of wet and dry habitats enables reptiles to cope with very dry weather while still remaining active;
 -  Night-time refuges such as tree roots and disused mammal tunnels;
 -  Ground vegetation cover over an area sufficient to allow feeding, refuge, breeding and dispersal;
 -  A diversity and abundance of suitable prey species, for lizards and slow worms this is a wide range of soft-bodied invertebrates with slow worms particularly favouring slugs and earthworms;

- 🌿 Suitable breeding habitats, although slow worms and lizards give birth to live young and have less specific habitat requirements than other reptile species they do require a sheltered humid microhabitat in which to give birth; and
- 🌿 Hibernation sites – normally south-facing and below ground or in raised structures which allow protection from frost, flooding and predators.

4.8 The main threats to reptiles at this site are considered to be:

- 🌿 Successional changes caused by lack of habitat management, resulting in increased shading and degradation of key microhabitat features;
- 🌿 Habitat fragmentation leading to population isolation;
- 🌿 Fire;
- 🌿 Predation by domestic cats; and
- 🌿 Disturbance resulting from public access, by people and dogs.

4.9 A number of highly variable factors are likely to influence reptile distribution and populations at any given site. Therefore, site-specific conservation objectives should reflect the value attributed to reptile conservation within the broader context of the management of the site for its other fauna and flora. For heathland management there may be some overlap in habitat attributes required by different species groups, as there are for example between invertebrates and reptiles which share many micro-habitat requirements, therefore habitat management for invertebrates is good for reptiles and vice versa. Where there are conflicts in habitat requirements between groups of nature conservation interests the resolution of these conflicts will require due care, attention and in-depth knowledge of species ecology.

4.10 Approximately 20% of the terrestrial habitat present on site was identified as good/optimum habitat for reptiles. During the survey it was observed that quite a large area of heathland habitat present on site had been affected by fire during the summer of 2018 and other heathland areas were of poorer quality as a result of an abundance of coarse grasses. There is potential to improve the extent of suitable habitat for reptiles by approximately 3ha at the site by managing areas of degraded heathland, with the aim of improving them for both reptiles and invertebrates, by creating a mosaic of structural diversity within the heathland habitat and reducing the abundance of coarse grasses. This management could result in considerable increase in the area of suitable reptile, and invertebrate, habitat present on the site to approximately 32%.

- 4.11 Clearance of large areas of habitat, such as the bracken present on the site, over short timescales can be very detrimental to reptiles as the margins of these stands adjacent to other habitats are of great value to reptiles which use them for dispersal, hunting, avoiding predators and the benefits of their warm microclimate in spring and shade from extreme heat in summer. With regard to reptiles the most effective and least damaging time to carry out bracken cutting is between June and July (for grassland mowing November and December are best) (Edgar et al, 2010). During survey visits it was observed that large areas of bracken had been cut late in the growing season. It should be noted that bracken can offer a significant microhabitat for reptiles and, therefore, its complete eradication should not be pursued. Retention of areas of bracken, particularly close to hibernation sites, is a valued conservation measure for reptiles as it provides warm microclimates to encourages emergence of reptiles in spring.
- 4.12 Management practices which result in changes to vegetation structure (whether that is grassland, woodland, scrub, bracken or heathland) should ideally be undertaken for small areas, on a rotational basis if possible, to maintain the valuable structural diversity which is beneficial to reptiles and many other species groups.
- 4.13 Reptiles such as slow worms have small ranges and consideration should be given to maintaining and enhancing the connectivity between suitable areas of reptile habitat where possible. In the event of further fires in the future it would be valuable to ensure that there are suitable strips of reptile habitat connecting heathland areas to enable distribution into further suitable, and safer areas, whilst encouraging interactions between species to increase population sizes and ranges and to mitigate the effects of habitat fragmentation.
- 4.14 If it is considered that daytime/nighttime refugia and hibernation sites for reptiles have been lost or reduced, for example due to habitat destruction by fire. The creation of artificial refugia may therefore be desirable. Artificial refugia can be created using stacked or piled logs and turf to provide suitable micro-climate conditions, basking opportunities and offer protection from predators. These features should ideally be approximately 4 metres long by 2 metres wide and 1 metre high and placed in areas of habitat favourable for dispersal, such as tussocky grassland (Edgar et al, 2010) and woodland edges. The placing of refugia should take into consideration avoiding disturbance from the public as far as possible, especially from children wanting to climb on them. The logs should be of varied sizes and shapes and in order to offer basking opportunities they should be orientated so that the longest edge faces south.

5. References

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- 🐸 Hampshire Biodiversity Information Centre (HBIC) (2019) Ecological Data: Petersfield Heath. Unpublished data, HBIC, 2019.
- 🐸 Herpetofauna Groups of Britain and Ireland (HGBI) (1998). Evaluating Local Mitigation/ Translocation Programmes: Maintaining Best Practice and Lawful Standards. HGBI Advisory Notes for Amphibian and Reptile Groups (ARGs). Halesworth: HGBI, c/o Froglife. Unpublished.
- 🐸 Hill, D. Fasham, M. Tucker, G. Shewry, M. Shaw, P (2005). Handbook of Biodiversity Methods – Survey, Evaluation and Monitoring. Cambridge: Cambridge University Press.
- 🐸 Joint Nature Conservation Committee (2003) Herpetofauna Workers' Manual. Peterborough: JNCC.

Appendix A
Reptile Survey Map



Legend	
Reptile survey areas	Lines
Artificial refugia	Points
Site Boundary	Lines

Figure 1: Reptile Survey Map

Drawn by: HF
On the: 14/01/2019
Not to Scale
Job No. 7826



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Appendix B

Legislation

Legislation

This section contains information pertaining to the legislation and planning policy applicable in Britain. This information is not applicable to Northern Ireland, the Republic of Ireland the Isle of Man or the Channel Islands. Information contained in the following appendix is provided for guidance only.






Species

The objective of the EC Habitats Directive¹ is to conserve plants and animals which are considered to be rare across Europe. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2010 (as amended) (formerly The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended).

The Wildlife and Countryside Act 1981 (as amended) implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and also implements the obligations set out for species protection from the Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.




Various amendments have been made since the Wildlife & Countryside Act came into force in 1981. Further details pertaining to alterations of the Act can be found on the following website: www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CROW) Act (2000) and Nature Conservation (Scotland) Act 2004.

There are a number of other legislative Acts affording protection to species and habitats. These include:

-  Countryside and Rights of Way (CROW) Act 2000;
-  Deer Act 1991;
-  Natural Environment & Rural Communities (NERC) Act 2006;
-  Protection of Badgers Act 1992; and
-  Wild Mammals (Protection) Act 1996.

Herpetofauna (Reptiles and Amphibians)

The following species receive full protection under the Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2.

-  sand lizard (*Lacerta agilis*);
-  smooth snake (*Coronella austriaca*);
-  natterjack toad (*Epidalea calamita*);

¹ Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.

- 🐸 great crested newt (*Triturus cristatus*); and
- 🐸 pool frog (*Pelophylax lessonae*).

Under this legislation, Regulation 41 prohibits:

- 🐸 deliberate killing, injuring or capturing of species listed on Schedule 2;
- 🐸 deliberate disturbance of any Schedule 2 species as to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young; and
 - (ii) to hibernate or migrate.
- 🐸 deliberate disturbance of any Schedule 2 species as to affect significantly the local distribution or abundance of the species;
- 🐸 deliberate taking or destroying of the eggs of a Schedule 2 species;
- 🐸 damage or destruction of a breeding site or resting place; and
- 🐸 keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part of a species.

With the exception of the pool frog, these species are also currently listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this Act, they are additionally protected from:

- 🐸 intentional or reckless disturbance (at any level);
- 🐸 intentional or reckless obstruction of access to any place of shelter or protection; and
- 🐸 selling, offering or exposing for sale, possession or transporting for purpose of sale.

Other native species of herpetofauna are protected solely under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). These species include:

- 🐸 adder (*Vipera berus*);
- 🐸 grass snake (*Naatrix natrix*);
- 🐸 common lizard (*Zootoca vivipara*); and
- 🐸 slow-worm (*Anguis fragilis*).

Under this legislation, for these species it is prohibited under Section 9(1) & (5) to:

- 🐸 intentionally (or recklessly in Scotland) kill or injure these species; or
- 🐸 sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

The following species are listed in respect to Section 9(5) of Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) which only affords them protection against sale, offering or exposing for sale, possession or transport for the purpose of sale:

- 🐸 common frog (*Rana temporaria*);
- 🐸 common toad (*Bufo bufo*);
- 🐸 smooth newt (*Lissotriton vulgaris*); and

 palmate newt (*L. helveticus*).

Appendix C

Survey Data

Surveyor	R. Schofield	Number of common lizards found		Number of slow worms found		Number of grass snakes found		Number of adders found	
Project Number	7826								
Visit	1								
Date	11/09/18								
Time	15:30	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
Temperature (°C):	16								
Rain	None								
Cloud cover (octares)	3/8	3	-	-	-	-	-	-	-
Wind (Beauforts)	2								
Total		3	0	0	0	0	0	0	0

Surveyor	Caleb Fry	Number of common lizards found		Number of slow worms found		Number of grass snakes found		Number of adders found	
Project Number	7826								
Visit	2								
Date	14/09/18								
Time	11:30	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
Temperature (°C):	17								
Rain	None								
Cloud cover (octares)	8/8	7	2	-	-	-	-	-	-
Wind (Beauforts)	1								
Total		7	2	0	0	0	0	0	0

Surveyor Project Number Visit Date Time Temperature (°C): Rain Cloud cover (octares) Wind (Beauforts)	Caleb Fry 7826 3 17/09/18 11:15 19 None 4/8 1	Number of common lizards found		Number of slow worms found		Number of grass snakes found		Number of adders found	
		Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
		4	-	-	-	-	-	-	-
		Total		4	0	0	0	0	0

Surveyor Project Number Visit Date Time Temperature (°C): Rain Cloud cover (octares) Wind (Beauforts)	Caleb Fry 7826 4 19/09/18 09:05 17 Showers 8/8 4	Number of common lizards found		Number of slow worms found		Number of grass snakes found		Number of adders found	
		Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
		1	2	1	3	-	-	-	-
		Total		1	2	1	3	0	0

Surveyor Project Number Visit Date Time Temperature (°C): Rain Cloud cover (octares) Wind (Beauforts)	Caleb Fry 7826 5 21/09/18 09:05 10 None 1/8 3	Number of common lizards found		Number of slow worms found		Number of grass snakes found		Number of adders found	
		Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
		1	1	-	-	-	-	-	-
		Total		1	1	0	0	0	0

Surveyor Project Number Visit Date Time Temperature (°C): Rain Cloud cover (octares) Wind (Beauforts)	Caleb Fry 7826 6 24/09/18 14:30 16 None 1/8 1	Number of common lizards found		Number of slow worms found		Number of grass snakes found		Number of adders found	
		Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
		9	3	2	-	-	-	-	-
		Total		9	3	2	0	0	0

Surveyor Project Number Visit Date Time Temperature (°C): Rain Cloud cover (octares) Wind (Beauforts)	Caleb Fry 7826 7 26/09/18 13:25 19 None 0/8 0	Number of common lizards found		Number of slow worms found		Number of grass snakes found		Number of adders found	
		Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
		5	-	1	-	-	-	-	-
		5	0	1	0	0	0	0	0
Total		5	0	1	0	0	0	0	0



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