Amphibians in Drains Project 2010
Perth & Kinross Ranger Service

Perth and Kinross Countryside Ranger Service
Perth & Kinross Council
Pullar House
Kinnoull St
Perth
PH1 5GD

PERTH & KINROSS COUNCIL
Environment Service

Perth & Kinross Council RANGER SERVICE

Introduction.

2010 saw the official start of the Amphibians in Drains Project within Perth and Kinross. Over 2008/09 observations were made by Countryside Rangers, along with Tayside Contracts staff who were undertaking routine drain maintenance, which suggested that a significant number of roadside gullypots contained trapped amphibians – mainly toads (*Bufo bufo*) but also frogs (*Rana temporaria*), and the occasional palmate newt (*Triturus helveticus*) – as well as small mammals. Roadside gullypots can act as pitfall traps when animals fall through the grid at road level, especially over periods of mass movement such as during the breeding season and when animals disperse to find hibernation sites. Once trapped it is unlikely that the animals will be able to escape or survive for any length of time.

It was identified that a more robust study to ascertain the scale of the problem was required. Total numbers of animals affected and the design of the gullypot were to be studied.

This project is supported by the Mammal Society, Froglife and the British Herpetological Society. It is one of the priority projects of the Tayside Biodiversity Partnership's Water and Wetlands sub-group.

Toads trapped in gullypot, Kinclaven Rd, Murthly.

Aims.

- To estimate the number of drains that may be affected across central and eastern Perthshire.
- To estimate the number of amphibians (& mammals) that may be trapped.
- To record species of amphibian (& mammals) affected.
- To correlate drain design and number and species of amphibians trapped.
- To identify other contributory features (such as proximity of drain to other habitat areas).

Methodology.

Roadside drains where there was a good line of sight were selected and checked regularly from spring through to autumn by the Ranger Service. This involved a quick visual check to see if there was any animal activity on the surface of the water, followed by a search in the water with a long handled net.

The design, number of animals trapped and other details were recorded. Tayside Contracts recorded the numbers of animals found in gullypots while carrying out cleaning from spring through to autumn.

Results.

Perth & Kinross Ranger Service results:

Survey results were initially recorded on a hand-held iPAQ but the data from spring and early summer were lost due to equipment failure. Survey results from July onwards were then recorded on paper.

With almost seventy per cent of the gullypots surveyed by the Ranger Service containing amphibians, it can be seen that a significant number of drains are acting as traps to wildlife crossing roads or moving along the side of roads (see Table 1 and Graph 1). In urban areas there is the added hazard of high kerbs which can act as a further channel into roadside gullypots. A huge amount of wildlife across the country must be affected by the presence of gullypots.

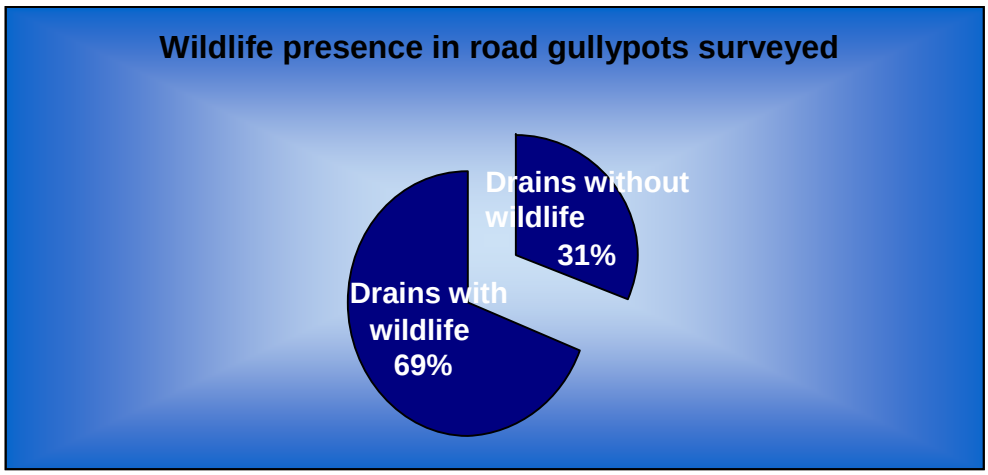
Toads are by far the commonest species found in gullypots, reflecting the toads' commoner status in the area. Toads made up 509 individuals/ 92% of the number of live animals found, and 96% of dead (126). Frogs made up 5% of the number of live animals found (27) and 2% of dead (3), while newts made up 3% of the live animals found (15) and 2% of dead, with three individuals (see graphs 2 & 3).

All animals falling into plastic gullypots will die; most amphibians can survive in the water of the gullypot for less than a week, though if able to access a dry ledge, this can extend to a number of months until the animals die from starvation/ cold weather. The majority of mammals found were voles, with the occasional shrew or mouse.

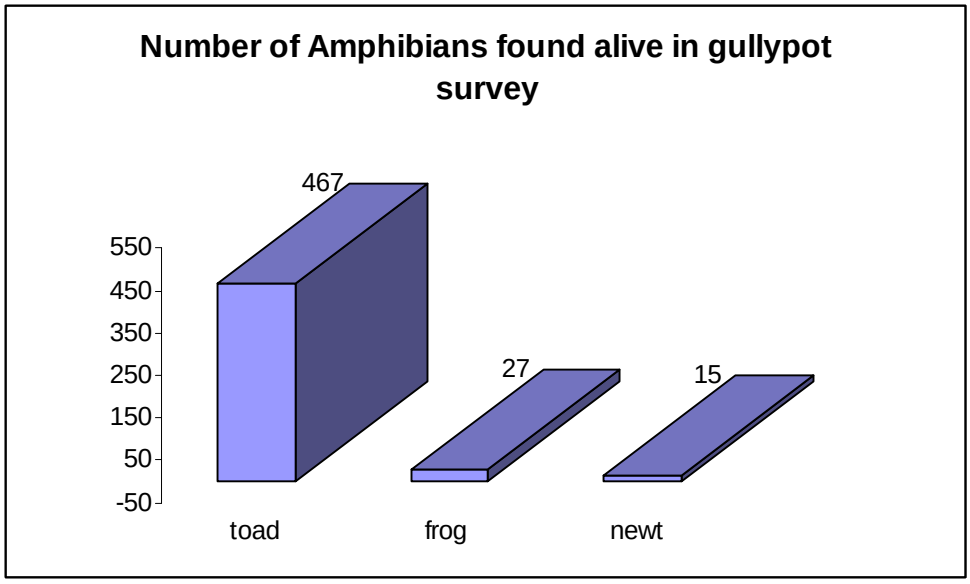
Table 1 – summary of wildlife numbers found in gullypots surveyed by Perth & Kinross Ranger Service

Number of gullypots checked July-Nov 2010 Number containing amphibians/ mammals	**322** **223**	 **69%**
Total number of amphibians found (alive): Number of toads Number of frogs Number of newts	**509** **467** **27** **15**	 **92%** **5%** **3%**
Total number of amphibians found (dead): Number of toads Number of frogs Number of newts	**132** **126** **3** **3**	 **96%** **2%** **2%**
Number of mammals found (alive)	**0**	
Number of mammals found (dead):	**56**	
Number of birds found (dead):	**1**	

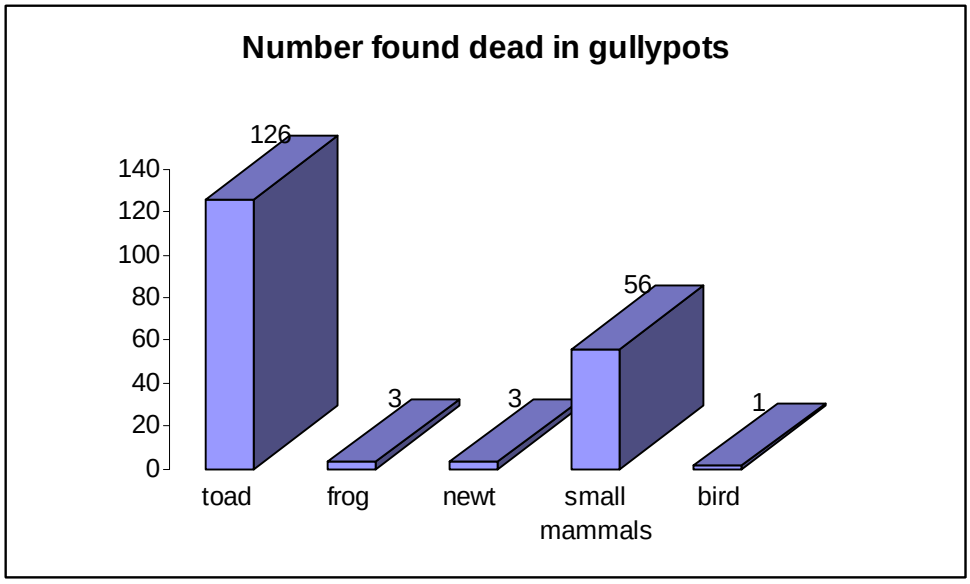
Graph 1 – Wildlife presence in gullypots surveyed



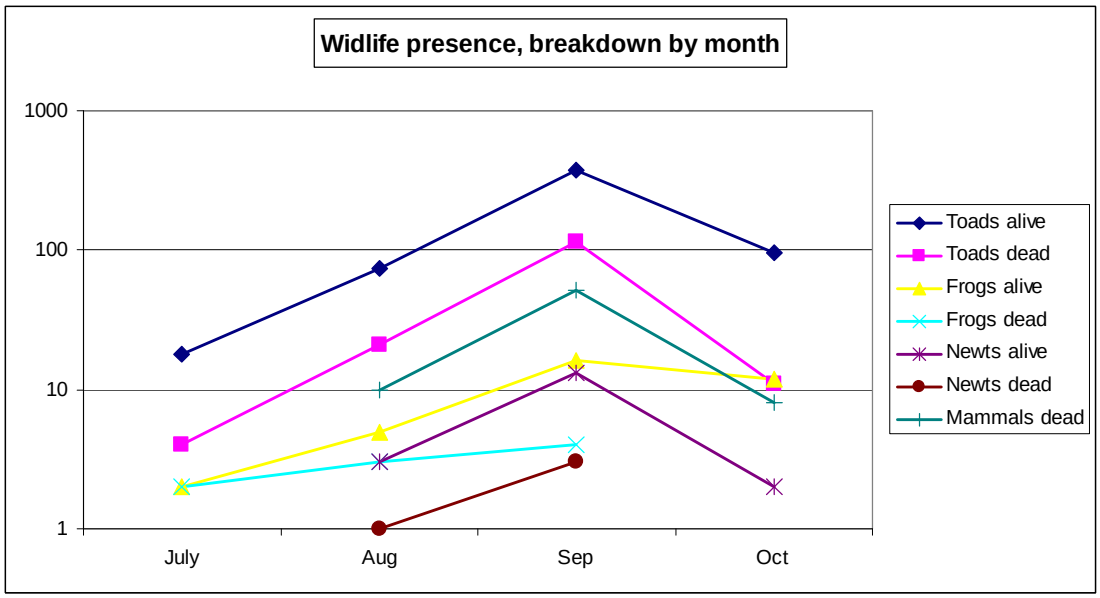
Graph 2 – Wildlife found alive in gullypots, breakdown by species



Graph 3 – Wildlife found dead in gullypots, breakdown by species



Graph 4 – Wildlife found in gullypots, breakdown by month



Tayside Contracts results:

Tayside Contracts results were significantly lower with only 17.2% of drains cleaned containing amphibians and 2.3% containing dead mammals. This is probably due to the fact that the gully cleaner operators were not primarily looking for wildlife, and would usually only spot very active animals on the surface of the water, which were then scooped out with a net.

Conclusions and recommendations:

This is the first year of a three year survey and more data will be collected in 2011 and 2012. However, initial findings would suggest gullypots could have a significant impact on local populations of amphibians. Some kind of ladder or ramp which would allow amphibians and mammals to escape from the drain would be beneficial. The design would have to be such that it would not interfere with the drainage efficiency of the gullypot.

From graph four we can see that the greatest number of animals were found in September, which is the time of year when amphibians will be dispersing to their hibernation grounds. It will be useful to see from data collected in 2011 and 2012 what the numbers will be in early spring when populations make their way to breeding ponds.

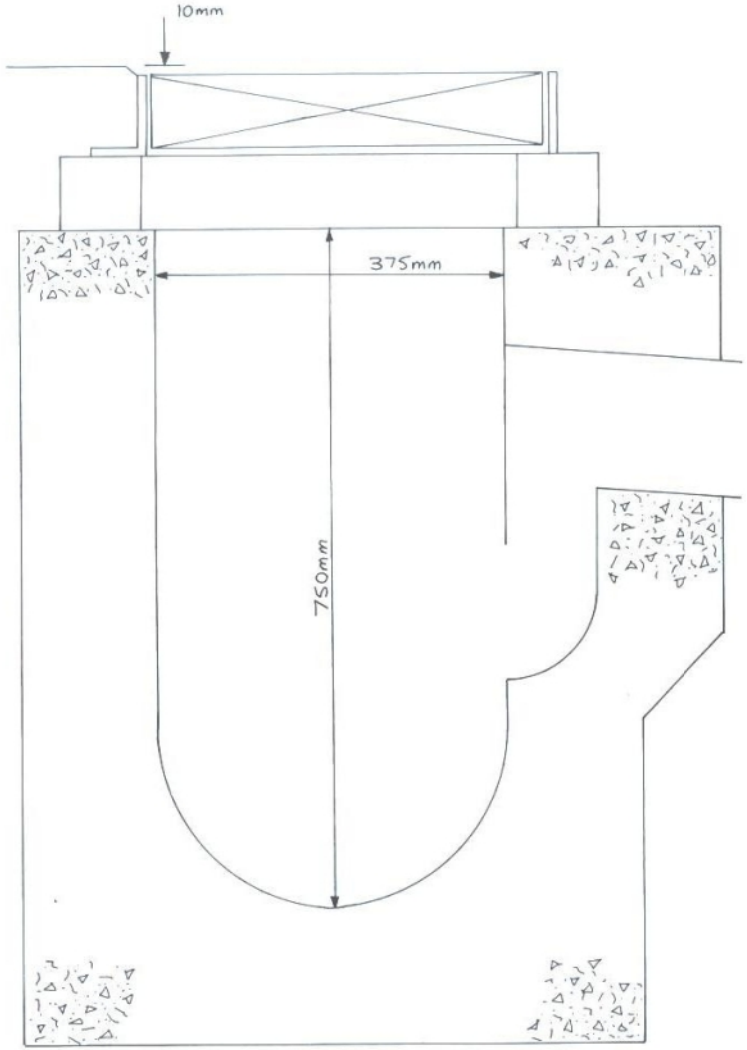
It was initially thought that it would be worthwhile collecting information on gullypot design and seeing if there was any correlation with the number of animals trapped, however only 4% of drains surveyed were not standard plastic design so this will not be recorded in future surveys. Gullypot design can be seen in diagram 1 in the appendix.

The survey in 2011 and 2012 will record distance to the nearest breeding pond. The 2010 survey suggests that high numbers are found close to SUDS ponds and breeding ponds, as would be expected.

Gullypot drain cover.

Appendix.

Diagram 1 – Design of plastic gullypot and Table 2 - Recording card.



1. Gully grating and frame shall be in accordance with B.S EN124 D400 1994.
2. Gully grating to be set 10mm below carriageway profile on a full mortar bed of 1:3 cement/sand bed.
3. Gully grating and frame to be laid on a precast concrete slab.
4. Gully pot shall be surrounded with 150mm thick concrete,class 22.5/20.

PERTH AND KINROSS COUNCIL
ROADS DEPARTMENT

GULLY DETAIL

Drawn by	Approved by	STANDARD DETAIL
Traced by		
Checked by	Date	

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