

Amphibians in Drains Project 2011 Perth & Kinross Ranger Service



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



Introduction:

2010 saw the official start of the Amphibians in Drains Project within Perth and Kinross. This report summarises the findings of the survey carried out in 2011 which is the second year of a planned three year survey.

Aims:

- To estimate the number of drains that may be affected across eastern Perthshire and, through extrapolation, across Perth and Kinross.
- To estimate the number of amphibians (& mammals) that may be trapped.
- To record species of amphibian (& mammals) affected.
- To investigate if there is an association between adjacent habitat type and high numbers of trapped amphibians.
- To investigate if there is an association between proximity to ponds and high numbers of trapped amphibians.

Methodology:

Roadside drains with 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. It is likely that the number of dead animals is under-recorded in this study as the corpses sink to the bottom of the gullypot after a number of days.

Tayside Contracts took part in the project in 2010 but was not involved in 2011. Newhill primary school in Blairgowrie became involved in autumn 2011 and carried out a number of surveys close to the school in October & November as part of their 'Scottish Wildlife' project. A number of interested householders from Drimmie and Murthly also took part in amphibian rescue and recording. Those records are included in this report.

Results:

- **Numbers and species**

In 2010, 69% of the gullypots surveyed by the Ranger Service contained wildlife. In 2011 this figure is slightly lower at 63%, however the actual numbers of animals trapped were higher due to a greater number of drains being checked this year (see graph 1).

Again, toads were by far the commonest species found in gullypots in 2011, with 783 individuals being found alive - 90% of the total of alive animals - and 205 dead individuals (93% of the total of dead animals). Frogs were the second

commonest species found with 56 alive animals (7%) and 12 dead (5%). Newts were not sorted into species as the majority of those found were palmate, though both male palmate and smooth newts were found together in one drain in Murthly in May (smooth newts are rare in the area – see photo 1). Newts made up 3% of live animals found (27 individuals) and 2% of dead (4 individuals). One hundred and fourteen small mammals were found – these were mostly voles, followed by shrews, then mice. See table 1 and graph 2.



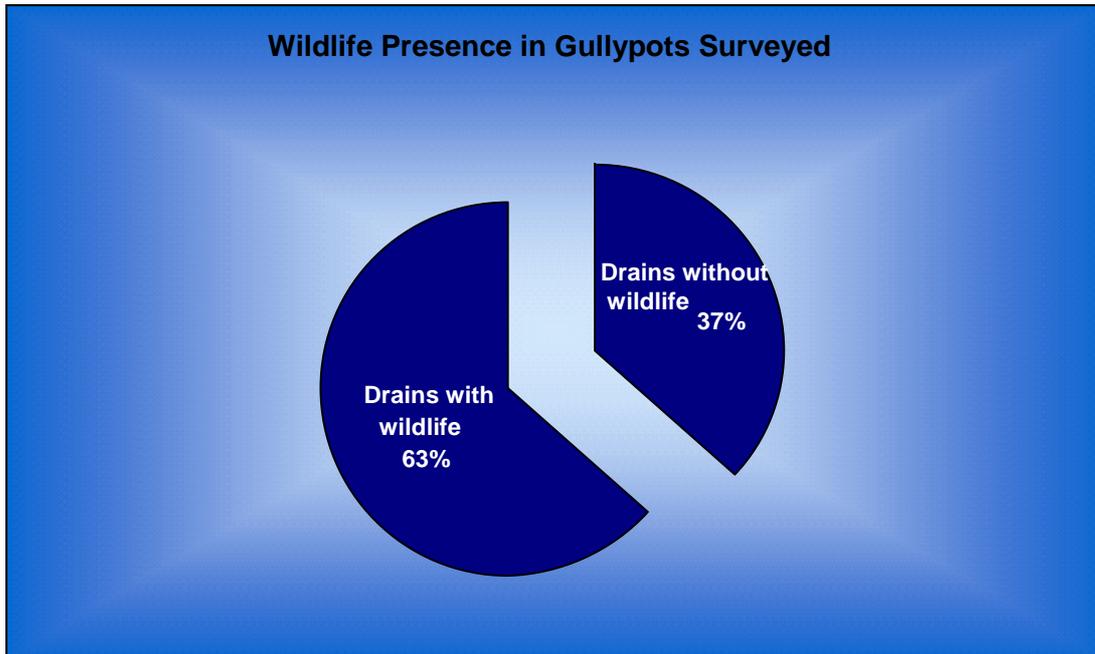
Photo 1 - male smooth newt

All animals falling into plastic gullypots will die. In some of the older gullypots, which are usually made of brick, there may be a chance of escape if the water level rises to the same level of a pipe which discharges into a ditch. However this design is very rare and all new and replacement gullypots are the plastic construction.

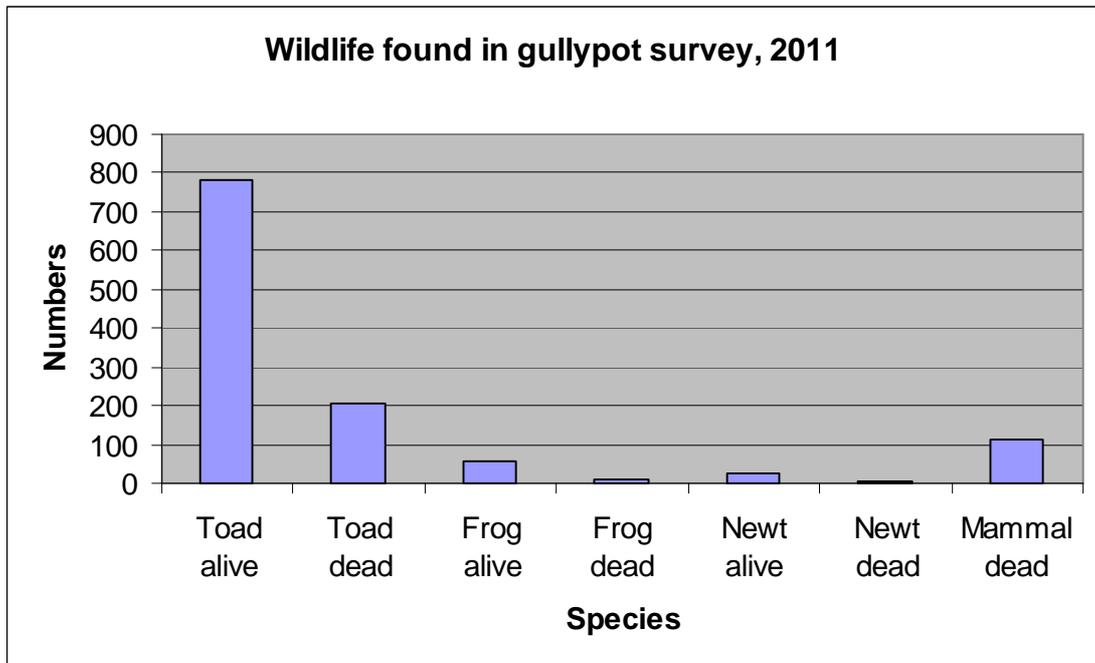
Table 1 – summary of wildlife numbers found in gullypots surveyed by Perth & Kinross Ranger Service 2011:

Number of gullypots checked Mar-Nov 2011	636	
Number containing amphibians/ mammals	402	63%
Total number of amphibians found alive:	866	
Number of toads	783	90%
Number of frogs	56	7%
Number of newts	27	3%
Total number of amphibians found dead:	221	
Number of toads	205	93%
Number of frogs	12	5%
Number of newts	4	2%
Number of mammals found alive:	0	
Number of mammals found dead:	114	

Graph 1 – Wildlife presence in gullypots surveyed in 2011



Graph 2 – Wildlife found in gullypots in 2011, breakdown by species

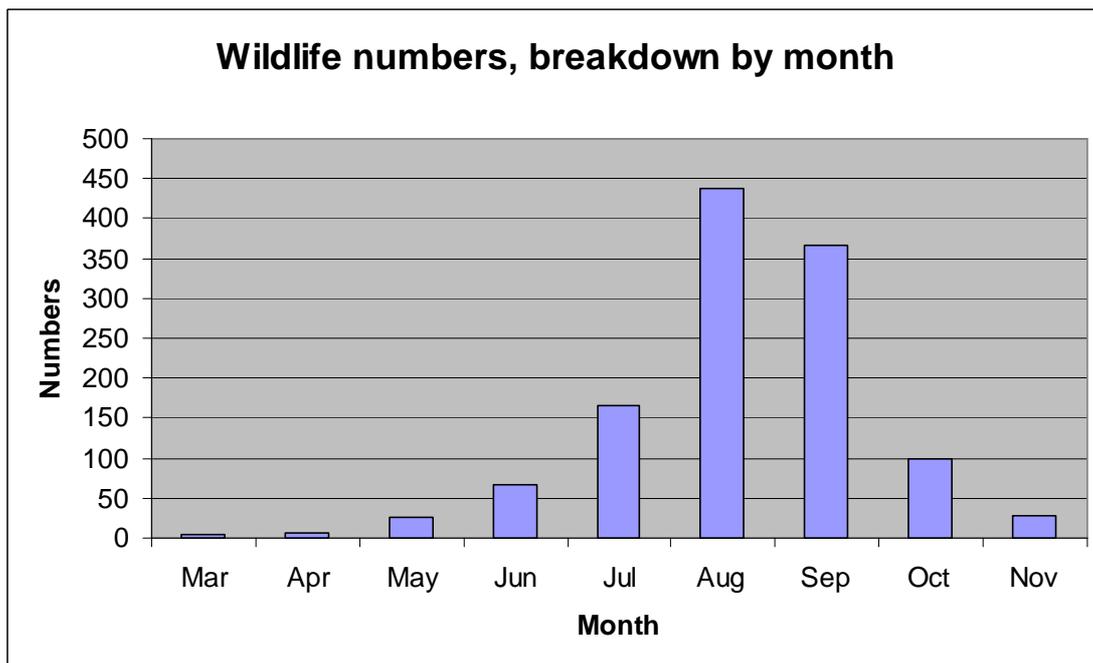


The majority of animals were found in August and September (see graph 3). Young amphibians will be leaving their breeding ponds in the summer and, along with adults, disperse to their hibernation sites in autumn. The same

migration route can be used for many years and these are frequently found in woodland. The majority of toads should be hibernating by November across Perth and Kinross.

It is surprising that more animals were not found in spring, when amphibians migrate to their breeding sites. Similar numbers to those found in August and September would have been expected.

Graph 3 – Wildlife found in gullypots in 2011, breakdown by month



Using the information in Table 2, we can extrapolate the figures from Table 1 to cover the whole of Perth and Kinross. With the total number of gullypots across Perth and Kinross being 37 252 and assuming 63% of them will contain wildlife, it is possible that 44, 318 animals may have been trapped across Perth and Kinross this year.

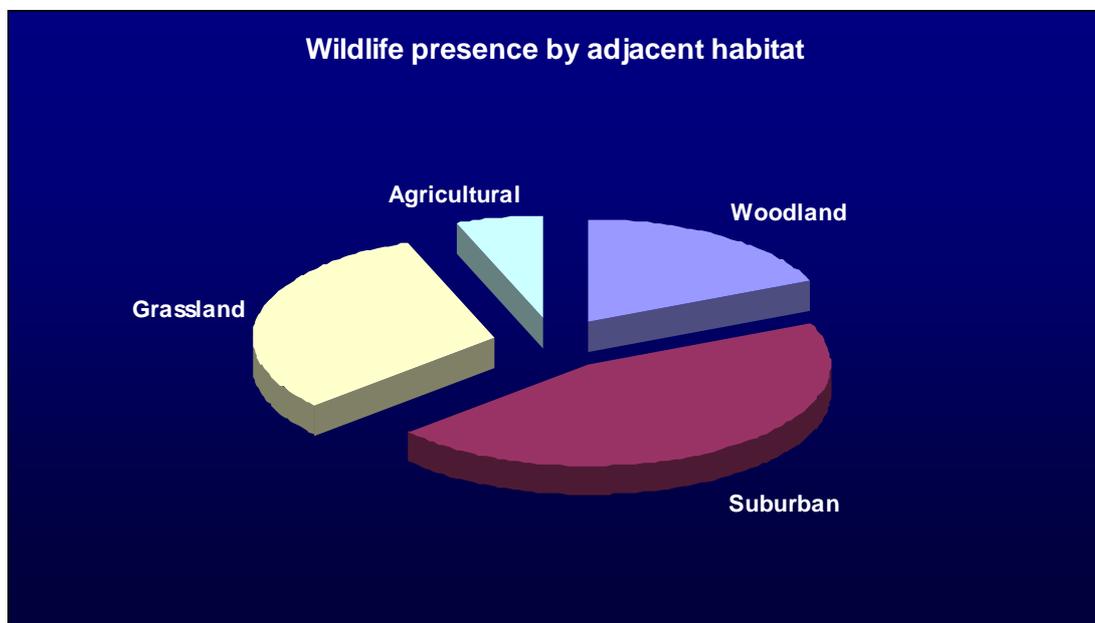
Table 2 – Number of gullypots across Perth and Kinross in 2011

Area	Environment		
	Urban	Rural	Total
Perth North - East	4,678	5,369	10,047
Perth North - Highland	2,043	4,858	6,901
Perth South - Urban	9,363	-	9,363
Perth South - Rural	4,595	6,346	10,941
Total	20,679	16,573	37,252

- **Habitat**

The habitat adjacent to the road and gullypot was noted – see graph 4. Animals were found in suburban, grassland, woodland and agricultural habitats, with greatest numbers in suburban areas (542 animals) and lowest numbers in agricultural areas (69 animals). Gardens, woodland and rough grassland are all important habitats for amphibians, and can provide both feeding and hibernation sites. Agricultural areas can vary in how well they provide food and habitat, but intensively farmed areas will probably support low numbers of amphibians.

Graph 4 – Wildlife presence in gullypots by adjacent habitat

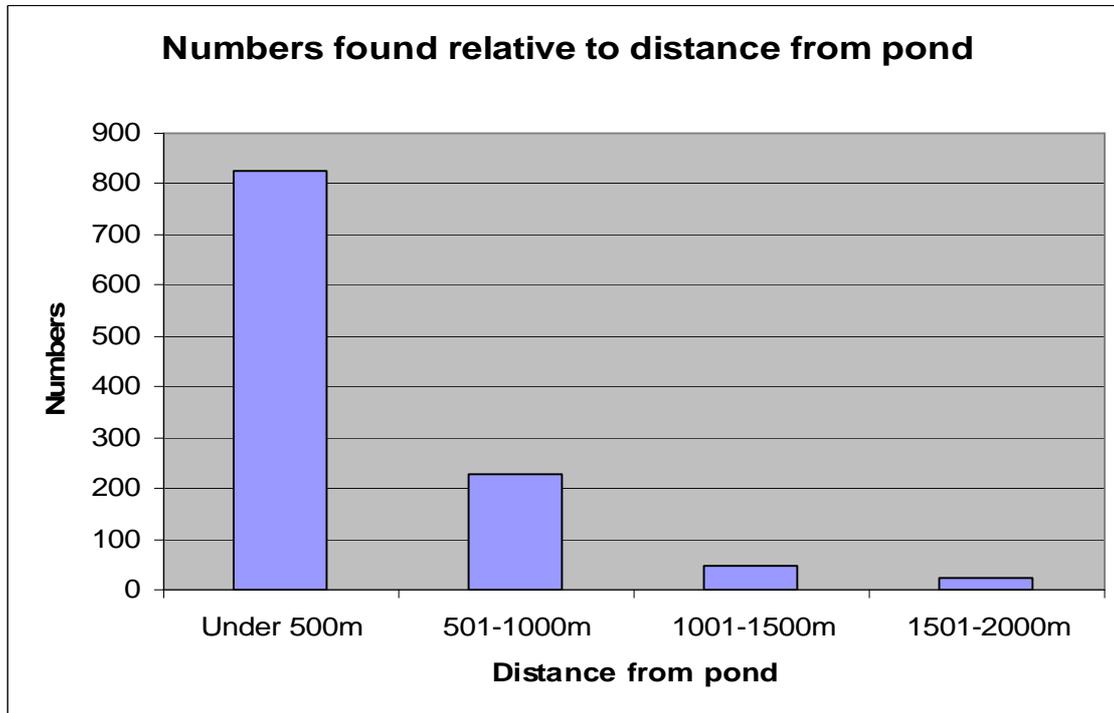


- **Distance from breeding pond**

The distance to a potential breeding pond was noted (see graph 5). The majority of animals were found within 500m of a pond, though toads will travel over a kilometre from hibernation and feeding sites to breeding ponds. A small number of animals were found between one and two kilometres from breeding ponds. Toads tend to prefer slightly deeper ponds than frogs and newts for breeding.

This information could be significant for the planning of road works involving gullypots or kerbs within 500m of a breeding pond.

Graph 5 – Wildlife numbers found relative to distance from pond



Conclusions and recommendations:

This is the second year of a three year survey. Results from 2010 and 2011 indicate that gullypots create a substantial problem for amphibians and small mammals. The common toad was added to the list of priority species during the revision of the national Biodiversity Action Plan in 2007. Inclusion in the plan not due not to scarcity of the species but rather to declines, and gullypots may be one of the causes of these declines in certain areas.

With the Nature Conservation (Scotland) Act 2004, local authorities now have a duty to further the conservation of biodiversity so there is a real opportunity for Perth & Kinross Council to provide a strong lead in this area and showcase practical solutions to a nationwide problem.

Project plans for 2012:

The Ranger Service will be looking to source SITA Tayside Biodiversity Action funding in early 2012 to purchase a number of wildlife kerbs (see photo 2) to use at a number of pilot sites in suburban areas. It will be useful to establish the pilot sites where there is data from 2010 & 2011 to enable comparison of before and after figures.

Wildlife kerbs contain a recess which allows wildlife to follow the lower edge of the kerb and bypass the gullypot. Kerbs will also need to be lowered at intervals to allow migrating amphibians an easy route off the road.

A study by the Vale of Glamorgan Pond Survey at Roose in 2006 showed that moving the gullypot 10cm away from the kerb led to 80% fewer great crested newts falling into the gullypots by allowing the animals to bypass the danger zone.



Photo 2 – ACO wildlife kerb in situ

Costs are as follows:

Cost of wildlife kerb	Cost of labour*	Unit (no of kerbs)	Total
48.59	1050	10	1535.90
48.59	1989.36	20	2961.16

* Cost of labour involves removal of existing kerbs, patching and installation of amphibian kerbs at pilot site(s). Costs for future work where the amphibian kerb is installed as a standard part of the works will be far lower, with only the unit cost of the kerb being more expensive.

The Ranger Service is working closely with the Roads Section of the Environment Service to identify appropriate areas for the location of the wildlife kerbs in the future.

Perth and Kinross Ranger Service will continue the Amphibians in Drains Survey in 2012.

Appendix:

Amphibian & Reptile Conservation (ARC) have produced a booklet – ‘Common toads and roads – guidance for planners and highway engineers in England’. <http://www.arc-trust.org/downloads/Toads%20and%20Roads.pdf>

Summary:

Legislation has placed a duty on local authorities to further the conservation of biodiversity and toads are a priority species in the UK Biodiversity Action Plan. Although not a European Protected Species, toads must be taken into account when considering the ecological impact of a proposed road development.

Amphibian and Reptile Conservation recommend a risk assessment be undertaken if a standing water body of more than two hundred square metres is present within one kilometre of the road boundary. If so, the risk assessment should be undertaken by experienced consultants to identify the likely threat of the road to a toad population. The risk assessment should consider habitats up to 1km from the road. Consultants should assess the following factors to identify whether the proposed road development will constitute a high, medium or low risk.

Factors contributing to a **high** risk:

- Development of a ‘Local Distributor Road’ or larger.
- Water body of >500m² present.
- Good vegetation cover, including woodland and rough grassland.
- No major barriers to dispersal such as existing major roads and urban development.

Mitigation approaches might include:

- Temporary traffic ban during migration.
- Reduction of drain related mortality through the use of modified kerbs.
- Exclusion/ deflection fences.
- Alternative habitat creation.
- Underpass/ tunnel construction.
- Overpass (only considered necessary as part of combined mitigation approach with larger migrating animal such as mammals).

Road developments likely to pose a high or medium risk to a toad population (as determined by an ecological consultant) will require a specialist survey to gather more information. These surveys should also be conducted by experienced consultants as part of an impact assessment at the onset of the planning process.

If a road development is likely to constitute a low risk it is unnecessary to undertake any further surveys, although dropped kerbs and wildlife kerbs should be installed on the new road to minimise any potential mortalities.