

DNA Service FAQs

WHAT DOES IT COST AND HOW LONG DOES IT TAKE?	2
ARE THERE ANY DISCOUNTS FOR MULTIPLE SAMPLES?	2
IS THERE A DISCOUNT FOR NON-COMMERCIAL TESTS?	3
IS THERE AN EXPRESS SERVICE?	3
CAN YOU IDENTIFY MULTIPLE BAT SPECIES PRESENT IN A SAMPLE?	3
WHY DO I HAVE TO PAY IN ADVANCE?	3
I NEED A VAT RECEIPT/INVOICE	3
WHAT CAN YOU TEST?	3
CAN YOU IDENTIFY THE SEX OF AN ANIMAL OR INDIVIDUAL ANIMALS?	7
WHY DO I HAVE TO PROVIDE ALL THIS INFORMATION?	7
WHY DO I HAVE TO USE A COURIER?	7
HOW DO I ORGANISE THE COURIER?	8
CAN I USE THE COURIER'S EXPRESS SERVICE TO SPEED UP THE PROCESS?	8
CAN I SEND SAMPLES FROM OUTSIDE GB?	8
WHAT HAPPENS IF THE SAMPLE IS LOST IN TRANSIT?	8
HOW MANY BAT DROPPINGS SHOULD I SEND PER SAMPLE?	8
HOW SHOULD SAMPLES BE PRESERVED?	9
HOW SHOULD SAMPLES BE PACKAGED?	9
HOW QUICKLY WILL I GET RESULTS?	10
THE TEST DIDN'T WORK – WHAT WENT WRONG? CAN I HAVE A REFUND?	10

What does it cost and how long does it take?

No. of samples per shipment	Cost PER SAMPLE excl. VAT	Additional costs PER SAMPLE excl. VAT for:	
		Multiple species sample (bats only)*	Express service
1-4	£50	£10	£20
5-9	£45		
10-19	£40		
20+	£35		
Non-commercial samples†			
Flat rate	£30		

Courier cost PER SHIPMENT excl. VAT (as of December 2016)	£16.50
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*Please read “Can you identify multiple bat species present in one sample”

†Non commercial is strictly for University research, bat groups, etc. If you have not sent us non-commercial samples before, you must contact us before choosing this option.

Service	Turnaround time
Standard	10 working days from receipt at the lab
Express*	3 working days from receipt at the lab
Mixed sample	As above (can be standard or express)
Carriage (UPS courier)	Usually 2-3 working days from dispatch to delivery

*The Express service is occasionally temporarily unavailable. [Please check availability before requesting express analysis](#)

Important notes:

1. SEL aim to reply to emails/process forms within 6 working hours; however, all enquiries are dealt with directly by our ecologists, so there may be delays if we are out on site. Please contact us again only if you have not received a reply within one working day.
2. The courier cost (UPS) is obligatory for samples sent from the UK.
3. You may send both express and standard service samples in one consignment, but you must use a separate form for express and standard samples. In this case, on the second sample form you must select "No carriage (2nd form of two in one shipment)" in the Carriage dropdown box
4. One package can contain multiple samples, but note packaging instructions for package size/weight limits.
5. Turnaround time relates to the period elapsed after the sample has arrived at the lab at WIT. Shipments may get to the lab the day after they arrive at WIT, depending on time of arrival and staffing at reception.
6. Bank holidays (i.e. non-working days) for WIT may not be the same as in the UK.
7. The timings given above assume that there is sufficient DNA of adequate quality to allow the tests to work first time. If they do not, and further testing is required, the target dates may not be met.
8. Costs will periodically be reviewed and may be changed at any time. Changes to carriage costs are made in response to changes by the courier, which are outside our control.

Are there any discounts for multiple samples?

Yes. Please see “What does it cost and how long does it take”

Is there a discount for non-commercial tests?

Yes. Please see “What does it cost and how long does it take”

Is there an express service?

Yes. Please see “What does it cost and how long does it take”

Can you identify multiple bat species present in a sample?

Yes, but the testing procedure is different depending on the species likely to be present (see also “What tests do you use”).

1. If you think the species present is one or more of common pipistrelle, soprano pipistrelle, brown long-eared or any of the *Myotis* species, this will be picked up as a matter of course by the initial test performed by the lab. In this case there is no need to ask for a mixed sample analysis.
2. If you have specified on the form that you think it is a different species to those above i.e. one of *Rhinolophus* sp., barbastelle, *Nyctalus* sp. or serotine, the species you have specified will be tested for first. If this test fails, other species will then be tested for.
3. If, however, you think that the sample may contain a mix of species that might include species from both the above groups, or multiple species from the second group, and you want to establish all the species present, then you can ask for a mixed species test. There is an additional charge for this.

See “What does it cost and how long does it take” and also “What tests do you use”

Why do I have to pay in advance?

We have encountered frequent problems with payment not being made promptly and having to chase it before results can be released. This delays you getting your results and takes additional time that we have not budgeted for; with the increased number of samples being processed, it was beginning to render the service unviable. We therefore took the decision to simplify the system by partly automating the process and requiring payment in advance so that the additional work and delays to issuing of results were avoided. This should result in the service becoming more efficient for all of our customers.

I need a VAT receipt/invoice

This will be issued with your shipping label.

What can you test?

- Faecal samples from mammals (droppings, scat)
- Fur
- Tissue samples (do not send entire carcasses. See “How should samples be preserved and packaged”)
- Owl pellets
- Swabs (from bite wounds etc.) – **PLEASE CONTACT US BEFORE SENDING SWABS.**

Species can be identified as below. If the species you require is not listed (e.g. non-UK bat species), please contact us as we can often identify species other than those listed here.

Group A. Carnivores.

Wildcat*	<i>Felis sylvestris</i>
Red fox	<i>Vulpes vulpes</i>
Otter	<i>Lutra lutra</i>
Pine marten	<i>Martes martes</i>
Badger	<i>Meles meles</i>
Stoat	<i>Mustela erminea</i>
Weasel	<i>Mustela nivalis</i>
Polecat*	<i>Mustela putorius</i>

Group B. Small mammals.

Water shrew	<i>Neomys fodiens</i>
Common shrew	<i>Sorex araneus</i>
Pygmy shrew	<i>Sorex minutus</i>
French shrew	<i>Sorex coronatus</i>
Lesser white toothed shrew	<i>Crocidura suaveolens</i>
Greater white toothed shrew	<i>Crocidura russula</i>
European water vole	<i>Arvicola amphibius</i>
Bank vole	<i>Myodes glareolus</i>
Field vole	<i>Microtus agrestis</i>
Common vole	<i>Microtus arvalis</i>
Yellow-necked mouse	<i>Apodemus flavicollis</i>
Wood mouse	<i>Apodemus sylvaticus</i>
Harvest mouse	<i>Micromys minutus</i>
House mouse	<i>Mus musculus</i>
Brown rat	<i>Rattus norvegicus</i>
Black rat	<i>Rattus rattus</i>
Hazel dormouse	<i>Muscardinus avellanarius</i>

Group C. Bats.

Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
Western barbastelle	<i>Barbastella barbastellus</i>
Serotine	<i>Eptesicus serotinus</i>
Alcathoe bat	<i>Myotis alcathoe</i>
Bechstein's bat	<i>Myotis bechsteinii</i>
Brandt's bat	<i>Myotis brandtii</i>
Daubenton's bat	<i>Myotis daubentonii</i>
Mouse-eared bat	<i>Myotis myotis</i>
Whiskered bat	<i>Myotis mystacinus</i>
Natterer's bat	<i>Myotis nattereri</i>
Leisler's bat (Lesser noctule)	<i>Nyctalus leisleri</i>

Noctule bat	<i>Nyctalus noctula</i>
Nathusius's pipistrelle	<i>Pipistrellus nathusii</i>
Common pipistrelle	<i>Pipistrellus pipistrellus</i>
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>
Brown long-eared bat	<i>Plecotus auritus</i>
Grey long-eared bat	<i>Plecotus austriacus</i>

Group D. Other mammals

Red squirrel	<i>Sciurus vulgaris</i>
Grey squirrel	<i>Sciurus carolinensis</i>
European hedgehog	<i>Erinaceus europaeus</i>
European hare	<i>Lepus europaeus</i>
Mountain/Irish hare	<i>Lepus timidus</i>
Fallow deer	<i>Dama dama</i>
Red deer	<i>Cervus elaphus</i>
Sika deer	<i>Cervus nippon</i>
Roe deer	<i>Capreolus capreolus</i>
Muntjac	<i>Muntiacus reevesi</i>
Chinese water deer	<i>Hydropotes inermis</i>
Edible dormouse	<i>Glis glis</i>
Mole	<i>Talpa europaea</i>
Wild boar*	<i>Sus scrofa</i>
Beaver	<i>Castor fiber</i>

Group E. Owls

Barn owl	<i>Tyto alba</i>
Snowy owl	<i>Bubo scandiacus</i>
Tawny owl	<i>Strix aluco</i>
Little owl	<i>Athene noctua</i>
Long-eared owl	<i>Asio otus</i>
Short-eared owl	<i>Asio flammeus</i>

***Mitochondrial DNA sequences from these species may be indistinguishable from those of domestic congeners (e.g. cats, ferrets and pigs).**

What tests do you use?

We are the only lab currently offering targeted qPCR analysis for individual bat species. For bats, the process is as follows:

A. Where the suspected species is one or more of a pipistrelle, long-eared or *Myotis* species, or no suspected species has been given:

1. Assuming >5 faecal pellets are present in the sample, a proportion of these will first be tested for common or soprano pipistrelle, brown long-eared, or *Myotis* genus bats. If either common or soprano pipistrelle or BLE is present, a result is provided

and no further testing is done. If *Myotis* is present, a further test is run to identify the particular species.

2. If this test fails to identify a species, a further test will be run for all other bat species on the same sample.
3. If this test fails another extract is taken from the original sample and the above process repeated.
4. If this test fails then sequencing is carried out.

B. Where the suspected species is a horseshoe, *Nyctalus* species, barbastelle or serotine, this will be tested for first; other tests will follow if this fails.

C. For samples identified as mixed/multiple species, testing will not stop once one species has been identified, but will continue until all species have been tested for. NB There are additional charges for mixed samples.

Any additional tests over and above that described above will be chargeable, but this will be agreed before proceeding.

The general DNA analysis protocol (all species) is as follows.

1. DNA is extracted from ~0.2g faecal material or 1-5 faecal pellets using a standard protocol as described in Croose *et al* (2016)*.
2. Where available species identification is carried out using species specific real-time (qPCR) assays. These assays target a variety of mitochondrial genes/regions such as cytB, nd1, d-loop and COI. At the moment qPCR assays are available for:
 - All UK and Ireland bat species
 - All UK and Ireland small mammal species
 - European Hedgehog
 - Pine marten
 - Fox
 - Fallow, Red and Sika deer
 - Red and grey squirrel
 - European otter

Further information on the use of qPCR in species identification can be found in Moran *et al* (2008).

Other species may be tested by sequencing. For a full list of species that can be identified by either qPCR or sequencing, see "What can you test".

3. If a qPCR assay is not available for the species or the sample has failed the qPCR assays standard PCR reactions are carried out to obtain a product for DNA sequencing. Depending on the expected species the primers used will target a 300-500 bp product from the mitochondrial genome (cytB, nd1, COI, and 16s genes and d-loop region). The sequence obtained is then compared to sequences in the GenBank® DNA database using **BLAST** (<https://blast.ncbi.nlm.nih.gov/Blast.cgi>).

[*For full references please see Guidance document](#)

Can you identify the sex of an animal or individual animals?

DNA tests for species ID use mitochondrial DNA, of which there are thousands of copies in each cell. Generally speaking we cannot identify individual animals, because to do this requires nuclear DNA, of which there are only two copies in each cell. There are limited circumstances in which the sex of an animal can be established e.g. otter – please contact us for more information.

Why do I have to provide all this information?

The lab is in the Republic of Ireland and import is licensed by the Irish Dept. of Agriculture, Food and the Marine (DAFM). The licence is issued annually to WIT and certain requirements have to be met. These include providing certain information such as origin of sample, dispatch address, dispatch date, delivery address, type of samples, weight of samples, and number of samples. It is a condition of the import licence that this information must be included in the sample package along with a copy of the commercial document. Failure to comply with this could result in the samples being confiscated and destroyed, and could affect the future of the service.

Certain information on the form does not have to be completed e.g. precise locations/grid references/site description, for example if the information is commercially sensitive.

Also, we have designed the form so as much information as possible is automatically carried through to other pages, so the amount of data entry is kept to a minimum.

Why can't you use a lab in the UK?

The WIT/SEL DNA analysis service established a benchmark for highly reliable identification of species through DNA; it was the first such service to be set up commercially in the UK and continues to offer reasonably-priced analysis and retains an extremely high success rate, often identifying samples where other labs have failed. We are also the only service to offer targeted qPCR of all the native bat species as well as identification of nearly all UK mammals. We acknowledge that there is an element of hassle involved in sending samples overseas, but we believe this is a small inconvenience for the level of service and reliability offered by the WIT/SEL partnership.

Why do I have to use a courier?

Until 2013 we used the UK postal service but biological samples (of any type) are now a prohibited substance for posting overseas and will not be accepted by the post office. We have thus set up a discounted account with UPS which, although more expensive, has been considerably quicker and more reliable than the post.

How do I organise the courier?

SEL will provide full instructions by email (given also below) and a UPS shipping label, which you need to attach to the parcel. **SAMPLES MUST BE DISPATCHED WITHIN TWO DAYS OF RECEIPT OF THE SHIPPING LABEL.**

To avoid the possibility of additional shipping charges, we advise the use of UPS drop off locations. You can find your nearest on www.ups.com "locations" tab. Confirm with them that UPS will pick up within 24 h, and take a contact number in case of problems.

However, if you need to have the parcel collected then you will need to contact SEL before doing so, as you will need account details to make the booking. Collections can be booked either by 'phone on 03457 877877 or via www.ups.com "schedule a collection".

Select Domestic Standard delivery and only arrange for a pick up during normal working hours otherwise you will be liable for additional charges. If booking the collection on line, keep a record of the collection number provided to you by UPS.

We can track the shipment, but do not routinely do so unless a problem is identified.

Can I use the courier's express service to speed up the process?

Rather than the parcel being sent straightforwardly across the Irish sea by ferry, UPS express service parcels are first flown to Germany; from there they are flown to Dublin and thence via road transport to Waterford. In practice this has been no quicker than the standard service and in two cases ended up with the parcel stuck in Frankfurt for a week. The standard service therefore is the only one we use.

Can I send samples from outside GB?

Yes, but you will need to organise a courier as the UPS account only applies to GB shipments (i.e. England, Wales and Scotland). Import is only licensed from EU countries and licensing restrictions will still apply. The shipping address is given at the bottom of Tab 2 of the sample form. On payment page of sample form, select dropdown "No carriage (outside GB only)"

What happens if the sample is lost in transit?

This is a very rare occurrence but if it happens then UPS will refund the courier fee. Due to the nature of the consignments, UPS will not insure packages other than refund of carriage fees. Therefore if you require insurance for other reasons (e.g. to cover costs associated with obtaining a replacement sample) you will need to arrange this independently. Please see also "How many bat droppings should I send per sample".

How many bat droppings should I send per sample?

Although it is usually possible to obtain a result from a single dropping, we advise that wherever possible you collect at least 5-10 droppings, submit at least 3 for testing and keep at least a couple back in the unlikely event of loss in transit. Such losses are very rare but if you have kept a few droppings in reserve this avoids the need to make an additional trip to collect more. It also means that the lab has more than one dropping to work on, in case the first test fails.

How should samples be preserved?

- Do not store samples in alcohol or other preservative; keep in a cool, dry place. You can refrigerate (or freeze if needed for longer term storage), but please see notes about moisture content below.
- If collecting faecal samples from live bats, or bat faecal samples that are for some other reason not completely dry, they should be naturally air-dried for a few days before sending – i.e. do not put damp samples straight into containers. Droppings from live bats have often proved difficult to extract DNA from; possibly due to a bacterial reaction due to the moisture content, which then affects the DNA content of the mucus covering of the dropping, which contains the epithelial cells from the digestive tract of the bat.
- Do not send entire bodies of bats or other small animals; snip off a part of the tissue.

How should samples be packaged?

- Do not use glass containers.
- The best containers for bat droppings are small (2 ml) plastic tubes e.g. Eppendorf safe-lock tubes <https://online-shop.eppendorf.co.uk/UK-en/Laboratory-Consumables-44512/Tubes-44515/Eppendorf-Safe-Lock-Tubes-PF-8863.html> . We can supply a pack of 20 such tubes on receipt of a stamped, addressed envelope (Jiffy C5 or similar, postage to cover contents weighing 25 g).
- Standard urine sample-type plastic tubes (c. 20 ml) are fine for larger scats but not for bat droppings. Small droppings in a large container move around in transit, which may cause them to break up which can mean it is more difficult to get a result. Also if you are sending multiple samples, you cannot get many of the larger tubes into one package; this may mean you exceed package size limits and have to pay more carriage, and if there are too many tubes in an envelope it is more likely to come open during transit.
- If you use ziplock-type plastic bags, ensure these are as small as possible; otherwise, the droppings move around and break up in transit and also can be difficult to extract intact. If ziplock bags or tubes are not available, seal bags securely with sticky tape.
- Please retain part of the sample if possible (also see “How many bat droppings should I send per sample), in the unlikely event of loss or damage in transit.
- Samples must be individually marked with their unique sample number. Without this they will not be processed. The package must be sent within 2 working days of the sample numbers being allocated.
- Place sample bags/tubes together in a leakproof outer bag along with absorbent material e.g. kitchen towel in case of leakage. This should also be securely sealed. If the sample is likely to leak or smell please add an extra sealable plastic bag. This is not only good practice but a condition of the import licence and failure to comply could result in confiscation and destruction of the samples.
- Hard copies of Tab 2 of the test form, and the commercial document (Tab 5), must be included in the package.

- Express and standard service samples can be sent in one consignment, but you must complete a separate form for each type.
- The consignment must be packaged in a Jiffy bag or a cardboard container of maximum combined dimensions (i.e. length x width x depth) 5000 cm. Anything greater than this will attract additional carriage charges which will be invoiced to you.
- Seal outer envelopes securely – tape up the flap as well as using the sealing strip.
- The outer envelope must be marked “For research and diagnostic purposes”.

How quickly will I get results?

It depends on the service level you select. Please read “What does it cost and how long will it take”

The test didn't work – what went wrong? Can I have a refund?

The lab's success rate is 95% and failures are rare. It is usually not possible to know why a particular sample has failed, but the most likely reasons are:

- The sample was not from the target species group, and therefore could not be identified (although the lab will always attempt to identify species to other groups if possible);
- There was insufficient or inadequate quality DNA in the sample to allow amplification. The latter may be caused by:
 - Moisture content of the sample;
 - DNA having been lost or degraded from the sample through exposure; or
 - The sample having become broken up in transit so that the mucus covering has been destroyed.

See also “How should samples be preserved and packaged”

The charge for the analysis is not refundable. It covers labour for both SEL and WIT, and the primers and other lab materials needed to carry out the analysis. Please also see the service's standard Terms and Conditions.