

# Science for Saving Species

## Research findings factsheet

### Project 3.1



National Environmental Science Programme

## What data can be added to the Australian Threatened Species Index?

### What data are useful for the index?

Calculating trends requires 'time series' data. A time series is when data are collected at the same place, over time and with the same method, which allows us to be able to compare the results from different years.

In order for your data to be able to be used as a time series for the Threatened Species Index (TSX), they must:

- Be collected at the same specific place each time, not in a general region, e.g. 'Sherwood Arboretum' is acceptable, 'Brisbane' is not.
- Have full resolution coordinates (e.g. latitude and longitude)
- with a specified datum/projection e.g. WGS84
- Be collected in at least two different years.
- Data need to contain information on the year the survey was undertaken. But month and date is also helpful for seasonal comparisons if that information is available.
- Specify the species that was surveyed, if possible to the subspecies level.
- Specify what you counted (e.g. nests, traps, individuals) and have a count (e.g. 50 nests) per unit area (e.g. 20 hectares) and over what time (e.g. 20 minutes)
- Be collected with the same method each time. Please specify the survey method in the data. Metadata on effort, such as survey duration and size of area surveyed, are also important so that we can compare 'apples with apples'.

### Counts per year

	ID of fixed site	GPS coordinates subIBRA where site is located (WGS84)		Species name (subspecies)	Search Type Description	Units	1970 counts	1971 counts	...	2017 counts
1	16093	-36.31880487	144.9278026	Malleefowl	Fixed route search	Proxy: breeding pairs	9	8	...	1
2	12885	-28.5877954	153.1466674	Northern Rufous Scrub-bird	500m Area search	Sample: abundance (counts)	0.5	0.25	...	0
3	14300	-38.22420633	146.3744546	Swift Parrot	Swift parrot search	Sample: abundance (counts)	3.5	6	...	3.5

### What data are NOT useful for the index

- One-off surveys i.e. incidental sightings
- While incidental observations are valuable for spatial applications such as defining/modelling species ranges, one-off data points cannot be used to build a time series which are needed to accurately estimate population trends

*Same place, same method, repeat, repeat, repeat...*

*Choose a place to monitor, a method to use, times to survey and stick to it!*





## How to maximise the usefulness of your data?

### Be consistent.

Don't change survey methods/ protocols. Survey in the same season/ month each time, especially when this is influential. For example far eastern curlew numbers have been going up in Darwin Harbour over the last decade but you are unlikely to ever find a far eastern curlew in Darwin in July, as this is when they are in the northern hemisphere.

### Decide what you are counting.

Choose the unit of measurement you use and stick to it: example things to measure are breeding pairs, nests, traps, counts of individuals; densities of individuals (counts over fixed areas/transects) or occupancy (# presences/# all surveys carried out).

### Monitor for the long-term.

Although a time series can be as short as two years, this is an extremely short time-frame. The longer you monitor a site, and the more consistently surveyed it is, the greater the ability to detect change. Monitor sites over the long-term (at least 4 years; may include one to two years of gaps without monitoring) to become eligible for the TSX.

### Add to existing time series.

Why start a new time series from year zero if someone around the corner

has been surveying a site for 10 years already? Find out their method and help to continue their data set by exactly repeating what they did.

### Record true absences of species.

If absences or non-detections of a species are not recorded then trend estimates may be significantly inflated.

### Collect representative data.

Try to sample sites across the entire species range, but don't try to do too much. You don't need to count every individual every year to get a reliable population trend.

### Is my data good enough?

Probably yes! You don't need to be a professor of science with decades of experience to do good monitoring. As long as data are collected consistently and repeatedly they are probably more than good enough.

### Does it matter what methods/ protocols I use?

No. As long as you use only a single, consistent method/protocol at a site each time. However, it is worth finding out methods/protocols others monitoring your species are using. If you can use the same protocols as others do, this opens up more opportunities to compare data from different sites.

### How often should I survey?

A general rule is at least once per year, however there are exceptions. Sometimes once every 2 or 3 years is sufficient and for some species multiple surveys in a single year across different seasons may be needed. It really depends on the ecology of the species.

If you provide data from surveys more than once per year, we will aggregate these data (by taking an average, maximum, or calculate reporting rates) to obtain a single annual value per site. If there are seasonal considerations we can limit aggregation to appropriate months for your species.

### How much spatial information is shared on my species?

Precise information about locations where a threatened species was monitored is removed before sharing it publicly. The aggregated database of the TSX currently only identifies locations to the level of biogeographic subregions which are typically greater than 10 x 10 km. These are the Interim Biogeographical Regionalisation for Australia (IBRA) subregions of which Australia has 419 in total.

## Further Information

For further information, database templates and metadata requirements contact:

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Counting far eastern curlew at Darwin's East Arm Wharf. Photo: Michael Lawrence-Taylor