

Collecting heat tolerance data protocol  
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## Aims

The aim is to collect thermal tolerance values and relevant variables from source studies obtained by systematic literature search.

## Protocol

The following variables will be collected and compiled from the original source, if available:

Variable name	Description
person	Name of person querying the data from the source study
taxon	Taxonomic name in Latin (species)
common_name	Common name (if given), in language of reference
taxon_name_notes	Notes on taxon name – separate notes with commas
tmax	The thermal maximum – a temperature in °C
n	Sample size for the tolerance value
metric	The metric of the tolerance value – ctm <sub>ax</sub> , lt <sub>50</sub>
	If the metric is neither LT <sub>50</sub> nor CT <sub>max</sub> , write “other”
metric_note	If metric is “other”, write what the authors called it in the source study
error	The error measured on the tolerance value
error measure	The error type measured – standard error (SE), standard deviation (SD), or other metric if neither
acclim temp	The acclimation temperature for the thermal tolerance value – a temperature in °C
acclim time	The duration that specimens were kept at the acclimation temperature at before beginning the thermal tolerance tests – in unit recorded in the study
acclim_time_unit	Recorded unit for acclimation time – d for days, h for hours, min for minutes
start_temp	Starting temperature of the test (only for tests with ramping procedure), most of the time this is the same as acclimation temperature
ramp	The temperature ramp rate for CT <sub>max</sub> tests – in °C/min
test time	Duration of the test
test_time_unit	Unit of test time/duration as recorded in reference study
endpoint	Which physiological endpoint was measured, mainly relevant for CT <sub>max</sub> – loss of movement (LOM), loss of righting reflex (LORR)
temp_tested	For LT <sub>50</sub> tests – number of temperatures tested
temp_rep	For LT <sub>50</sub> tests – number of replicates per temperature
temp_rep_n	For LT <sub>50</sub> tests – number of organisms per replicate
env temp	The temperature of the collection location of the organism – in °C
env_temp_sp	Collection type – air, water, point, average – if average, label with daily, weekly, monthly
env_temp_max	Maximum collection temperature if recorded
env_temp_min	Minimum collection temperature if recorded
season	Season during which organisms were collected and thermal tolerance was tested – winter, spring, summer, fall
	if collection and testing occurred in different seasons, enter the season that individuals were collected, unless collected individuals were kept

	<p>outdoors – then put season during which individuals were tested. For tests where individuals were not wild-collected, enter the season during which the test was conducted.</p> <p>If collected and tested across multiple seasons, put “multiple”</p>
season_type	Can put more than one if collection/testing occurred across multiple seasons (separate with comma) - hot, cold, intermediate
coll start	Put start date of collection, if reported, in ISO format: YYYY-MM-DD If only month is reported, put first day of that month
coll end	Put end date of collection, if reported, in ISO format: YYYY-MM-DD If only month is reported, put last day of that month
coll year	the year during which specimens were collected; if none recorded, leave blank
	<p>If collection occurred over multiple years, put the first one</p> <p>If collection occurred over more than three years and thermal tolerance values are inseparable between collection years, leave blank</p>
origin	Origin of the tested specimens – wild, commercial, or lab
	Eggs collected in the wild and reared in the lab count as wild, but with note “lab_reared”, offspring whose mothers were wild collected have origin “lab” with note “first_gen”
origin_note	lab_reared, first_gen
life stage	Life stage of the tested specimens – adult or non-adult
life stage sp	For non-adults: list life stage stated in paper, these can be collated later
sex	male, female, mixed if both explicitly mentioned (doesn’t have to be 50:50), blank if unreported
body mass	Body mass of tested specimens – average of the sample in grams
	When range is given, use midpoint
error bm	Error of the body mass, if reported
error measure bm	Type of error of the body mass, if reported
bm type	Type of body mass measure; wet or dry mass
body length	Body length of tested specimens – average of sample in mm
	When range is given, use midpoint
error bl	Error of the measured body length, if reported
error measure bl	Type of error of the body length, if reported
size notes	Notes on organism size (mass or length) if relevant
climate	Climate of the native range of the species – polar, temperate, subtropical, or tropical
habitat	Habitat of organisms, if recorded – marine, freshwater, brackish
	For fish which switch between marine and freshwater habitats – put water type that they were raised in/collected from
group	Organism group to which the species belongs – fish, invertebrate, algae; exclude amphibians, reptiles, mammals, etc
lat	the latitude of the collection location of the species – in decimal degrees format – use Google Maps for this
long	the longitude of the collection location of the species – in decimal degrees format - use Google Maps for this
	<p>If exact latitude and longitude of the collection location are not available, enter the coordinates for the testing location</p> <p>For non-wild collected specimen, enter coordinates of culture location – for eggs or very young specimens originating from</p>

	aquaculture/commercial sources that were shipped to the lab and reared there before testing, enter lab location
elevation	The elevation of the collection location of the species – in meters For non-wild caught specimens, enter elevation of lab where tests were conducted
continent	Continent of the collection location of the species – North America, South America, Eurasia, Oceania, Africa, Antarctica
country	Country of collection and testing, if recorded
aeration	If test system is not aerated or oxygen not added, put “No” (for aquatic tests only), if so put “Yes”, if water is flowing/circulating but nothing else is mentioned, put C
oxygen	Oxygen concentration
pH	pH of water during test, if recorded
salinity	Salinity of test, if recorded
salinity_unit	Salinity unit if recorded – conductivity or concentration units
add_stressor	indication if tolerance was measured with an additional stressor – put yes or no
type_stressor	type of additional stressor, if present for oxygen put oxygen for chemicals put chemical For parasite infections, put parasite For other infections, put pathogen
stressor_type_sp	Chemical name if chemical stressor present, Parasite name for parasite, pathogen name for pathogen
level_stressor	level of the additional stressor, if present for oxygen, put high/low (not concentration)
level_stressor_unit	Unit of stressor – for chemicals, concentration units
notes_stressor	notes on the additional stressor, if present
plotdigit	Put “T” if data is extracted using plot digitizer
supp	Put “T” if data is found in supplementary information
ref_source	Database that reference was obtained from – GS for Google Scholar, WOS for Web of Science
ref_language	Original language of reference
pub_year	The publication year of the thermal tolerance study
ref	Reference for the thermal tolerance value
	Code as follows: One author: AuthorLastName_Year Two authors: Author1_&_Author2_Year More authors: Author1_et_al_Year For non-English studies code this in English
ref info	Full citation of the reference – in English
ref_info_orig	Full citation of the reference – in original language
ref doi	The doi of the reference (should be the same across languages)
ref_journal_orig	Journal of the reference – in original language
notes	Other relevant information