ReDNAAS: A Regional eDNA Alert System for Watchlist Organisms

Shaun Wilkinson PhD | Founder and CEO | Wilderlab

WILDERLAB

Discover DNA

Explore and download the collection of publicly available eDNA data with our interactive web application, developed as part of the Wai Tuwhera o te Taiao programme on behalf of the Environmental Protection Authority. Note that eDNA results do not appear on the map by default; Wilderlab clients have the option to make their data public when completing the sample submission form, or at any later date by notifying us in writing. This provides a useful resource for scientists, conservationists, educators, and anyone else with an interest in Australasia's biodiversity, water quality and biosecurity.

Map | Table

Search by sample/job number | Show advanced options

Enter search term

Search by species/taxon

Enter taxon/species name or taxon ID

Start date

17-Feb-2022

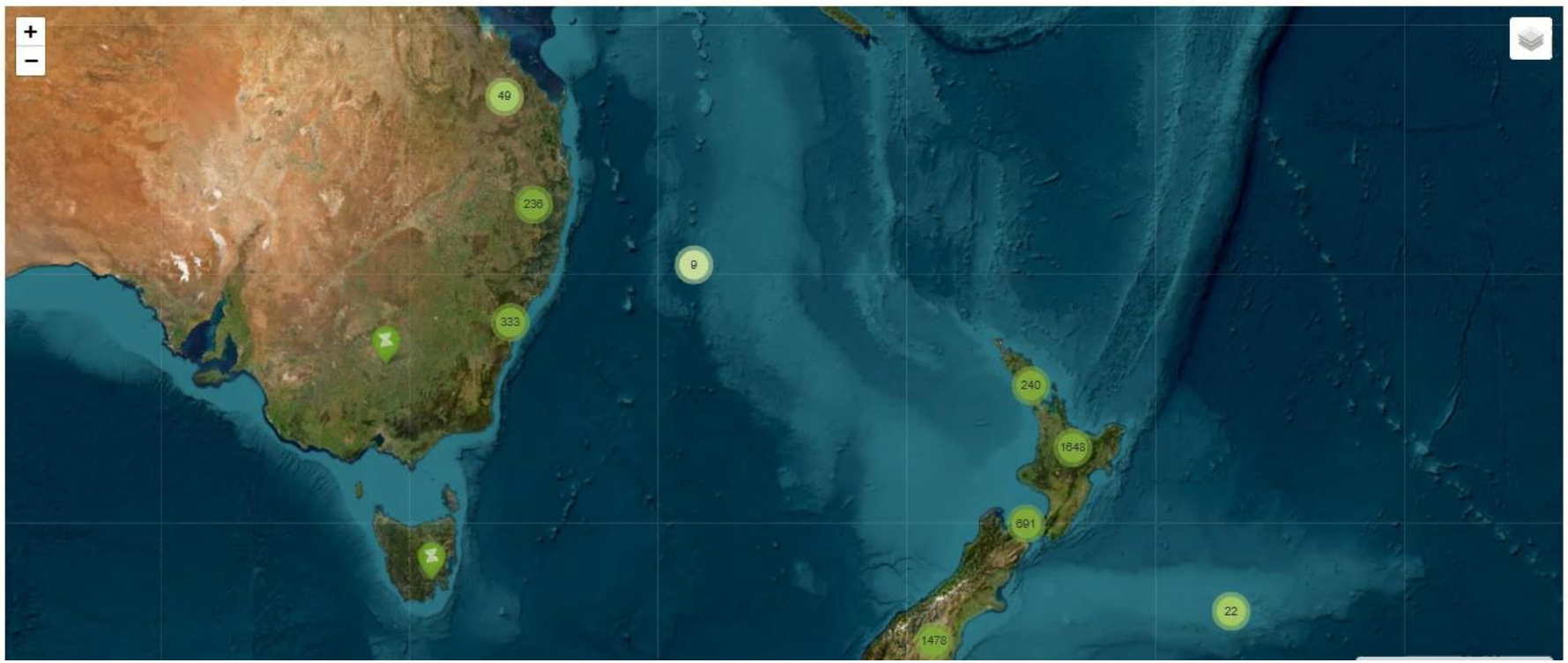
End date

16-Feb-2025

Passcode (optional)

Enter passcode if applicable

Search




© Gianni Neto

Official New Zealand Pest Register

Official New Zealand Pest Register

The Pest Register is a searchable database of pests and pathogens relevant to New Zealand, and includes general information about each pest, as well as specific details for researchers, importers, exporters and the general public.

Pests of concern to NZ

A search tool that contains information on all pests and pathogens that can affect plant, animal or human health in New Zealand.

Image credit: ISSG

NEW ZEALAND JOURNAL OF ZOOLOGY
https://doi.org/10.1080/03014223.2024.2359685

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RESEARCH ARTICLE

OPEN ACCESS Check for updates

Wetland biodiversity in Aotearoa New Zealand: an eDNA perspective on exotic and non-exotic species

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ABSTRACT

Invasive species threaten biodiversity in Aotearoa New Zealand. In wetlands – significant sites that provide an array of ecosystem and cultural services but represent <10% of their original extent – invasive species can affect hydrological function, nutrient regimes and overall ecological functionality. Environmental DNA (eDNA) has emerged as a valuable biomonitoring technique for cataloguing biodiversity and detecting biological incursions, but little is known about how biodiversity varies in wetlands over fine and broad spatial scales. Here, we examined the publicly available eDNA database of Wilderlab New Zealand, retrieving data from 26 sites across the country to characterise taxonomic diversity patterns, including the extent of exotic and non-exotic (native and endemic) species. We found significant spatial variation in biodiversity – even among neighbouring sites – and a pattern whereby all sites had ≥50% exotic species in their total species tally. Our results provide new information on the current state of wetland biodiversity in Aotearoa New Zealand and highlight the value of eDNA databases for generating new insights from publicly shared data. They also emphasise an urgent need for greater resource allocation to conservation and restoration initiatives in Aotearoa New Zealand that will ensure the persistence of treasured native and endemic wetland species.

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Australian Government

Department of Agriculture, Fisheries and Forestry

National Environmental DNA (eDNA) Testing Program MMXXIII

capacity, capability & competency for eDNA testing

in biosecurity & environmental management

Prof. Geoff Grossel

Asian gold clam - *Corbicula fluminea*

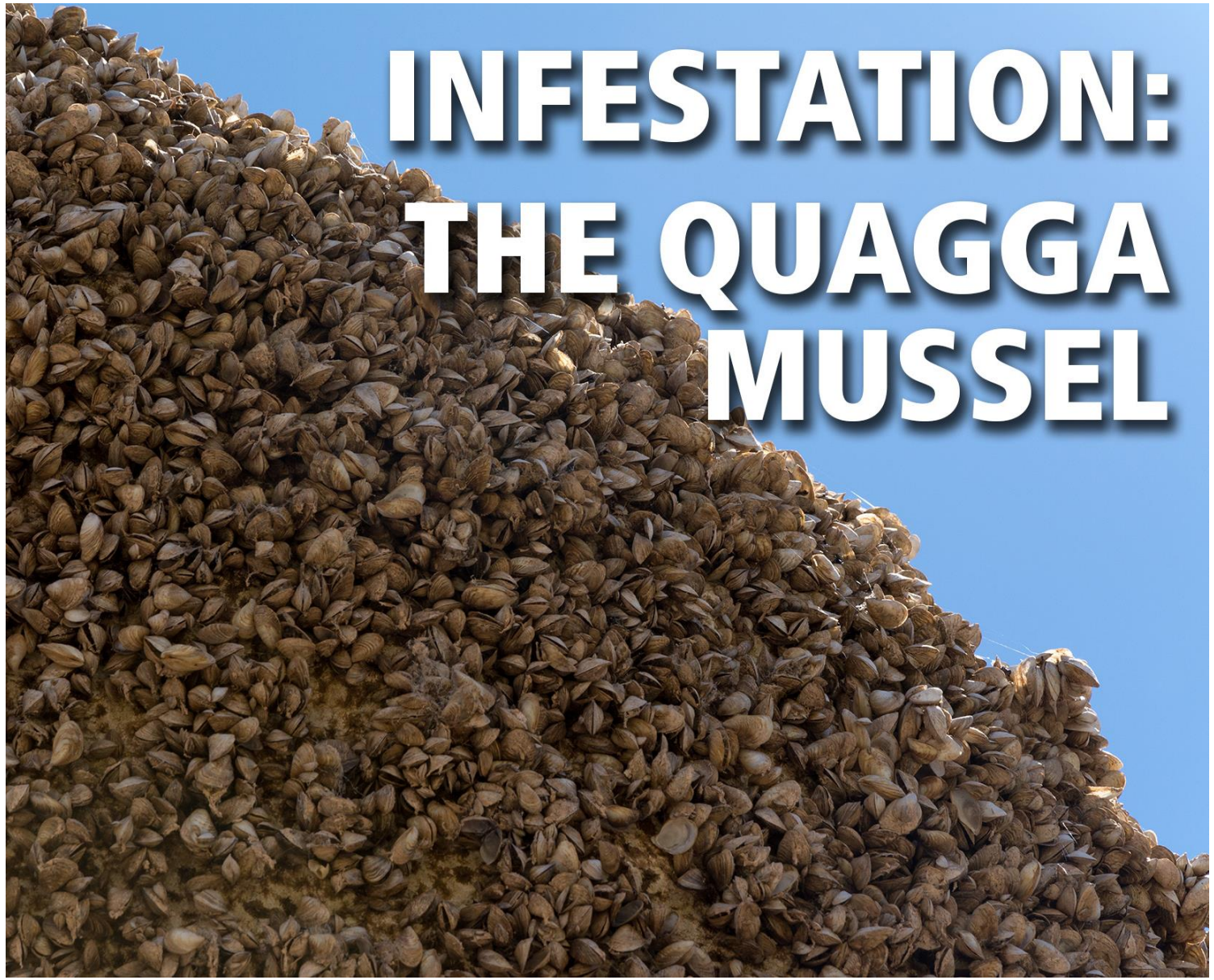






STOP THE SPREAD
CHECK CLEAN DRY
HELP TO PROTECT YOUR PLAYGROUND FROM THESE PESTS
Spotted it? Take a photo and report pest sightings to 0800 BIOSEC (0800 246 732).
ARRIVE CLEAN, LEAVE CLEAN
BOATS AND TRAILERS
Remove all weed from your boat, trailer, anchor and chain BEFORE launching and AFTER you return.
Check these high risk areas:
FISHING GEAR AND OTHER WATER SPORTS EQUIPMENT
CHECK
CLEAN
DRY
Visit mpi.govt.nz/check-clean-dry for more information.
GREAT LAKE TAUPŌ
Ministry for Primary Industries
Waikato

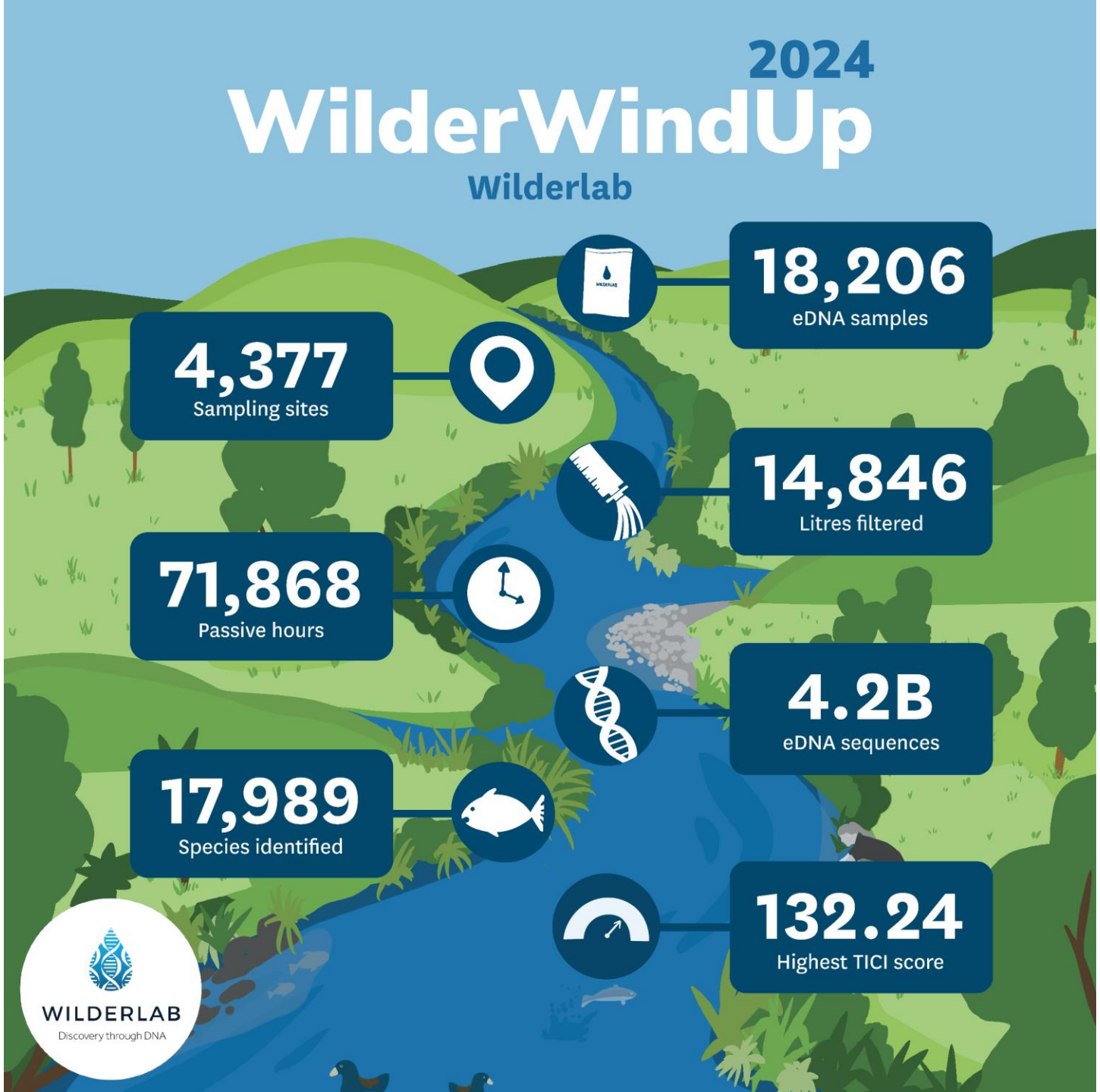
Zebra mussel
Dreissena polymorpha



INFESTATION: THE QUAGGA MUSSEL

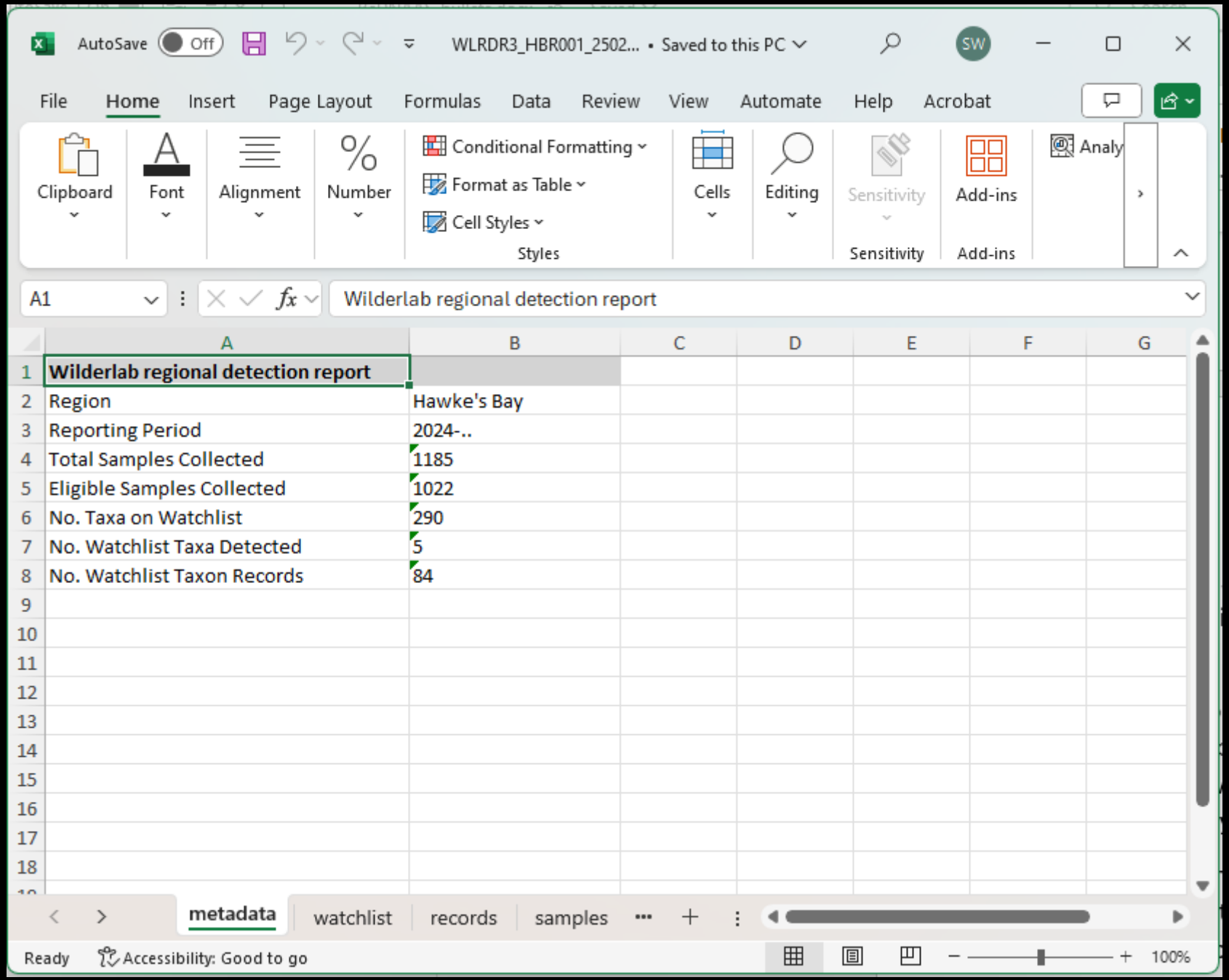
Go Wide

Go Deep


2024
WilderWindUp
Wilderlab
18,206
eDNA samples
4,377
Sampling sites
14,846
Litres filtered
71,868
Passive hours
4.2B
eDNA sequences
17,989
Species identified
132.24
Highest TICI score
WILDERLAB
Discovery through DNA

Regional eDNA alert system

- Custom bioinformatic software module
- Clients curate and create own species watchlists
- Module regularly scans Wilderlab database for hits to watchlist species
- Clients receive monthly email reports in HR/CR format
- Includes user's own data and public data records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A1
Wilderlab regional detection report
A B C D E F G
1 Wilderlab regional detection report
2 Region Hawke's Bay
3 Reporting Period 2024-..
4 Total Samples Collected 1185
5 Eligible Samples Collected 1022
6 No. Taxa on Watchlist 290
7 No. Watchlist Taxa Detected 5
8 No. Watchlist Taxon Records 84
9
10
11
12
13
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metadata watchlist records samples
Ready
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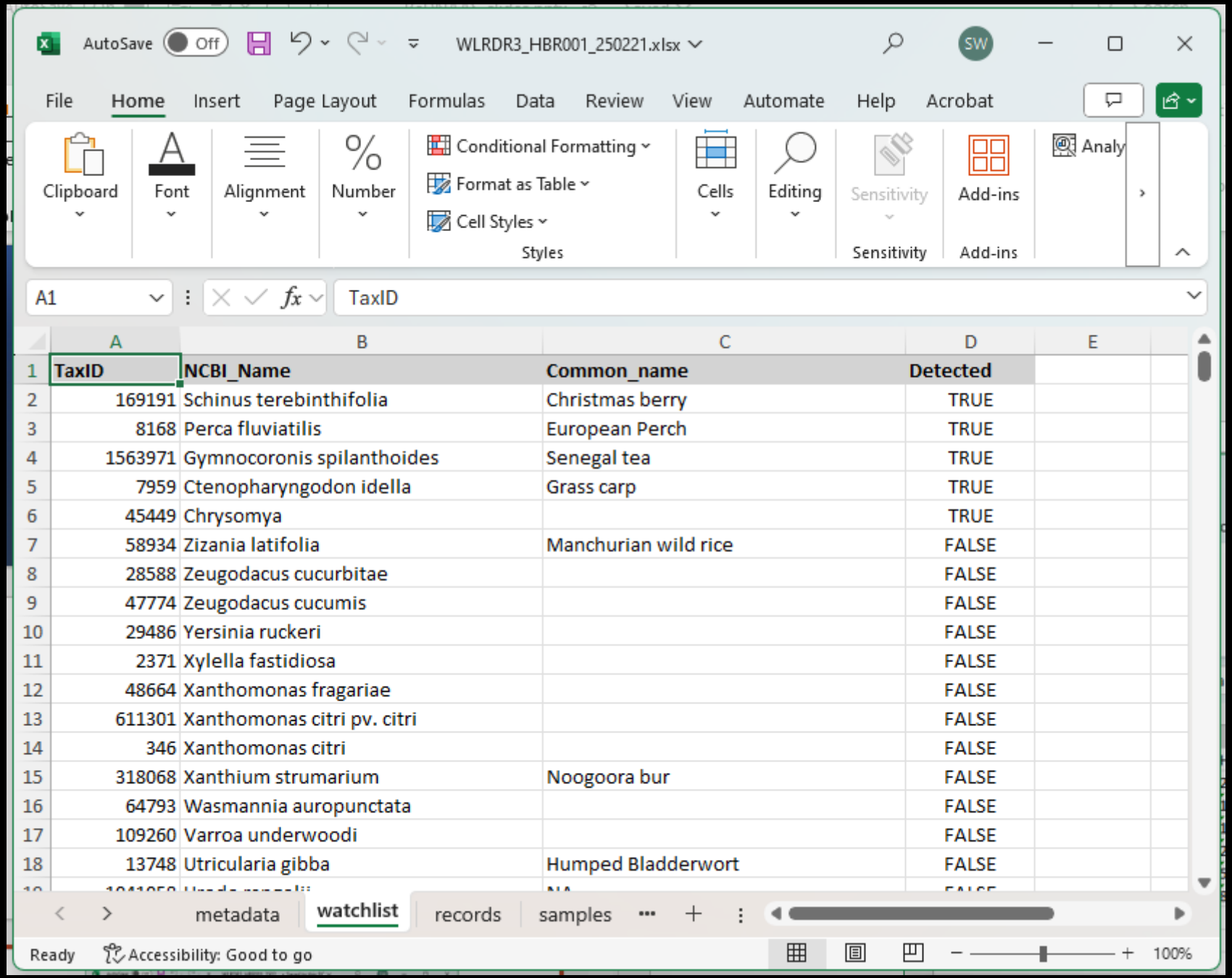
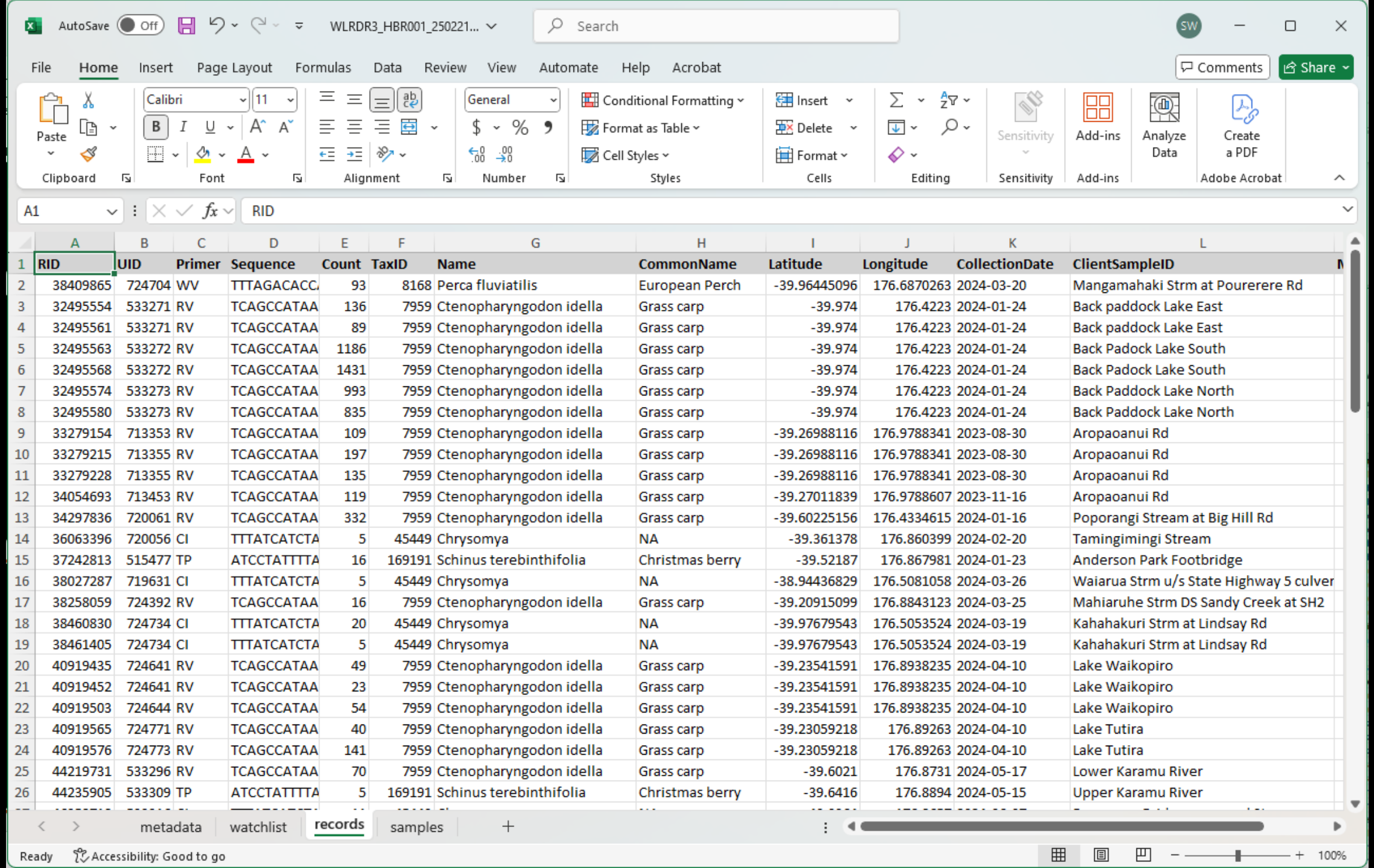


TaxID	NCBI_Name	Common_name	Detected
169191	Schinus terebinthifolia	Christmas berry	TRUE
8168	Perca fluviatilis	European Perch	TRUE
1563971	Gymnocoronis spilanthoides	Senegal tea	TRUE
7959	Ctenopharyngodon idella	Grass carp	TRUE
45449	Chrysomya		TRUE
58934	Zizania latifolia	Manchurian wild rice	FALSE
28588	Zeugodacus cucurbitae		FALSE
47774	Zeugodacus cucumis		FALSE
29486	Yersinia ruckeri		FALSE
2371	Xylella fastidiosa		FALSE
48664	Xanthomonas fragariae		FALSE
611301	Xanthomonas citri pv. citri		FALSE
346	Xanthomonas citri		FALSE
318068	Xanthium strumarium	Noogoora bur	FALSE
64793	Wasmannia auropunctata		FALSE
109260	Varroa underwoodi		FALSE
13748	Utricularia gibba	Humped Bladderwort	FALSE



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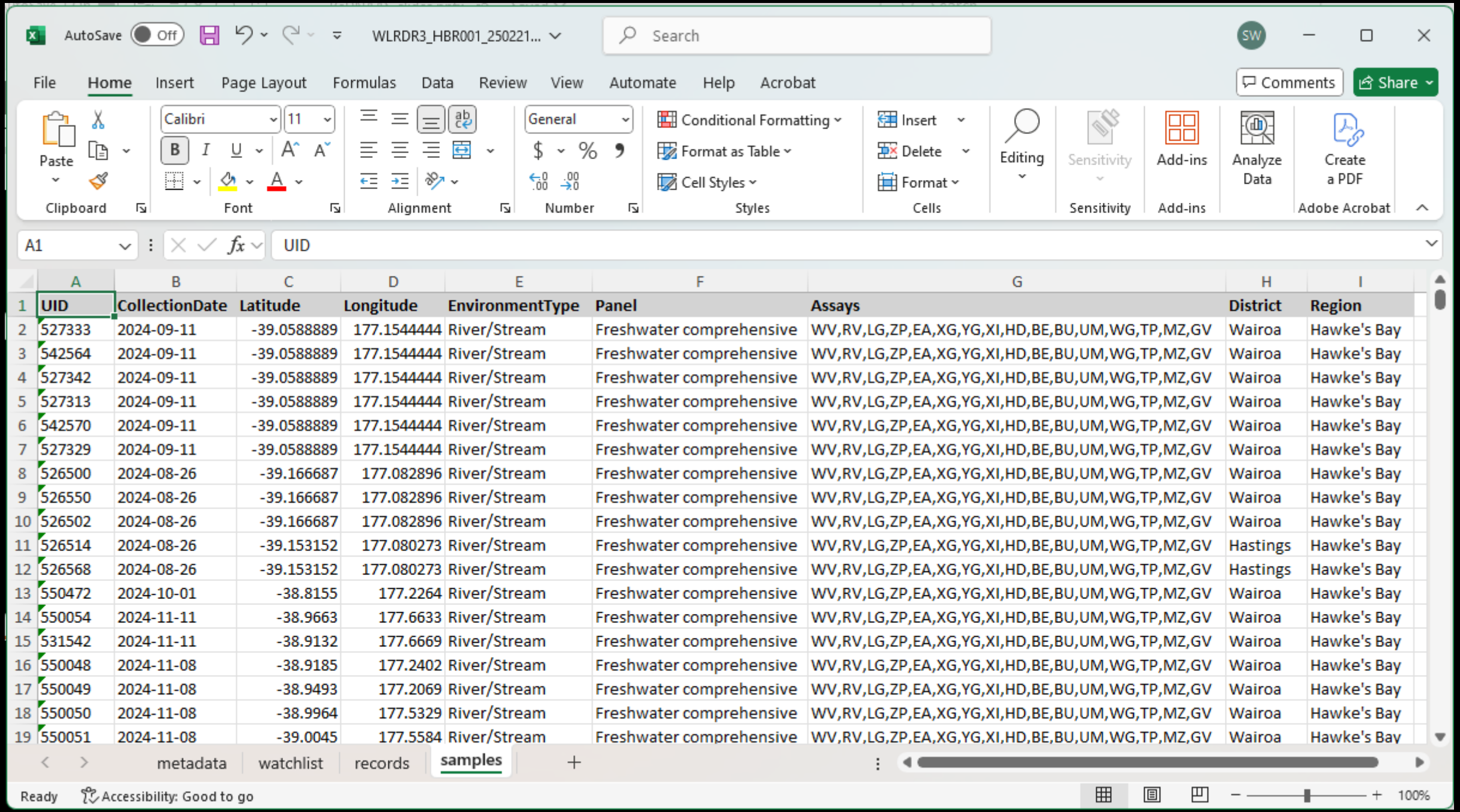
A1 RID

RID	UID	Primer	Sequence	Count	TaxID	Name	CommonName	Latitude	Longitude	CollectionDate	ClientSampleID
38409865	724704	WV	TTTAGACACC	93	8168	Perca fluviatilis	European Perch	-39.96445096	176.6870263	2024-03-20	Mangamahaki Strm at Pourerere Rd
32495554	533271	RV	TCAGCCATAA	136	7959	Ctenopharyngodon idella	Grass carp	-39.974	176.4223	2024-01-24	Back paddock Lake East
32495561	533271	RV	TCAGCCATAA	89	7959	Ctenopharyngodon idella	Grass carp	-39.974	176.4223	2024-01-24	Back paddock Lake East
32495563	533272	RV	TCAGCCATAA	1186	7959	Ctenopharyngodon idella	Grass carp	-39.974	176.4223	2024-01-24	Back Padock Lake South
32495568	533272	RV	TCAGCCATAA	1431	7959	Ctenopharyngodon idella	Grass carp	-39.974	176.4223	2024-01-24	Back Padock Lake South
32495574	533273	RV	TCAGCCATAA	993	7959	Ctenopharyngodon idella	Grass carp	-39.974	176.4223	2024-01-24	Back Paddock Lake North
32495580	533273	RV	TCAGCCATAA	835	7959	Ctenopharyngodon idella	Grass carp	-39.974	176.4223	2024-01-24	Back Paddock Lake North
33279154	713353	RV	TCAGCCATAA	109	7959	Ctenopharyngodon idella	Grass carp	-39.26988116	176.9788341	2023-08-30	Aropaoanui Rd
33279215	713355	RV	TCAGCCATAA	197	7959	Ctenopharyngodon idella	Grass carp	-39.26988116	176.9788341	2023-08-30	Aropaoanui Rd
33279228	713355	RV	TCAGCCATAA	135	7959	Ctenopharyngodon idella	Grass carp	-39.26988116	176.9788341	2023-08-30	Aropaoanui Rd
34054693	713453	RV	TCAGCCATAA	119	7959	Ctenopharyngodon idella	Grass carp	-39.27011839	176.9788607	2023-11-16	Aropaoanui Rd
34297836	720061	RV	TCAGCCATAA	332	7959	Ctenopharyngodon idella	Grass carp	-39.60225156	176.4334615	2024-01-16	Poporangi Stream at Big Hill Rd
36063396	720056	CI	TTTATCATCTA	5	45449	Chrysomya	NA	-39.361378	176.860399	2024-02-20	Tamingimingi Stream
37242813	515477	TP	ATCCTATTTTA	16	169191	Schinus terebinthifolia	Christmas berry	-39.52187	176.867981	2024-01-23	Anderson Park Footbridge
38027287	719631	CI	TTTATCATCTA	5	45449	Chrysomya	NA	-38.94436829	176.5081058	2024-03-26	Waiarua Strm u/s State Highway 5 culver
38258059	724392	RV	TCAGCCATAA	16	7959	Ctenopharyngodon idella	Grass carp	-39.20915099	176.8843123	2024-03-25	Mahiaruhe Strm DS Sandy Creek at SH2
38460830	724734	CI	TTTATCATCTA	20	45449	Chrysomya	NA	-39.97679543	176.5053524	2024-03-19	Kahahakuri Strm at Lindsay Rd
38461405	724734	CI	TTTATCATCTA	5	45449	Chrysomya	NA	-39.97679543	176.5053524	2024-03-19	Kahahakuri Strm at Lindsay Rd
40919435	724641	RV	TCAGCCATAA	49	7959	Ctenopharyngodon idella	Grass carp	-39.23541591	176.8938235	2024-04-10	Lake Waikopiro
40919452	724641	RV	TCAGCCATAA	23	7959	Ctenopharyngodon idella	Grass carp	-39.23541591	176.8938235	2024-04-10	Lake Waikopiro
40919503	724644	RV	TCAGCCATAA	54	7959	Ctenopharyngodon idella	Grass carp	-39.23541591	176.8938235	2024-04-10	Lake Waikopiro
40919565	724771	RV	TCAGCCATAA	40	7959	Ctenopharyngodon idella	Grass carp	-39.23059218	176.89263	2024-04-10	Lake Tutira
40919576	724773	RV	TCAGCCATAA	141	7959	Ctenopharyngodon idella	Grass carp	-39.23059218	176.89263	2024-04-10	Lake Tutira
44219731	533296	RV	TCAGCCATAA	70	7959	Ctenopharyngodon idella	Grass carp	-39.6021	176.8731	2024-05-17	Lower Karamu River
44235905	533309	TP	ATCCTATTTTA	5	169191	Schinus terebinthifolia	Christmas berry	-39.6416	176.8894	2024-05-15	Upper Karamu River

metadata watchlist records samples

Ready Accessibility: Good to go 100%



UID	CollectionDate	Latitude	Longitude	EnvironmentType	Panel	Assays	District	Region
527333	2024-09-11	-39.0588889	177.1544444	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
542564	2024-09-11	-39.0588889	177.1544444	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
527342	2024-09-11	-39.0588889	177.1544444	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
527313	2024-09-11	-39.0588889	177.1544444	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
542570	2024-09-11	-39.0588889	177.1544444	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
527329	2024-09-11	-39.0588889	177.1544444	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
526500	2024-08-26	-39.166687	177.082896	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
526550	2024-08-26	-39.166687	177.082896	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
526502	2024-08-26	-39.166687	177.082896	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
526514	2024-08-26	-39.153152	177.080273	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Hastings	Hawke's Bay
526568	2024-08-26	-39.153152	177.080273	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Hastings	Hawke's Bay
550472	2024-10-01	-38.8155	177.2264	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
550054	2024-11-11	-38.9663	177.6633	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
531542	2024-11-11	-38.9132	177.6669	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
550048	2024-11-08	-38.9185	177.2402	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
550049	2024-11-08	-38.9493	177.2069	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
550050	2024-11-08	-38.9964	177.5329	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay
550051	2024-11-08	-39.0045	177.5584	River/Stream	Freshwater comprehensive	WV,RV,LG,ZP,EA,XG,YG,XI,HD,BE,BU,UM,WG,TP,MZ,GV	Wairoa	Hawke's Bay

Dwarf mistletoe
Korthalsella salicornioides

NEW ZEALAND / ENVIRONMENT

Aggressive pest plant senegal tea discovered in Hawke's Bay

9:18 pm on 14 June 2024

Senegal tea, a pest, forms rounded bushes up to 1.5m tall and usually puts down roots on the edge of waterways. Photo: Supplied/Hawke's Bay Regional Council

Senegal tea, an aggressive pest plant native to South America, has been found in Hawke's Bay for the first time.

Hawke's Bay Regional Council said the plant was first identified in water samples from Te Awa

Ripple Connecting eDNA with action

eDNA data visualisation, collaboration and reporting platform

- Import/creation and curation of watchlists
- Suggests watchlist organisms
- Enables custom search areas
- Instant notifications of detections
- Data visualisation and reporting
- Talk to your eDNA (beta)

rippledna.com

info@epi-interactive.com

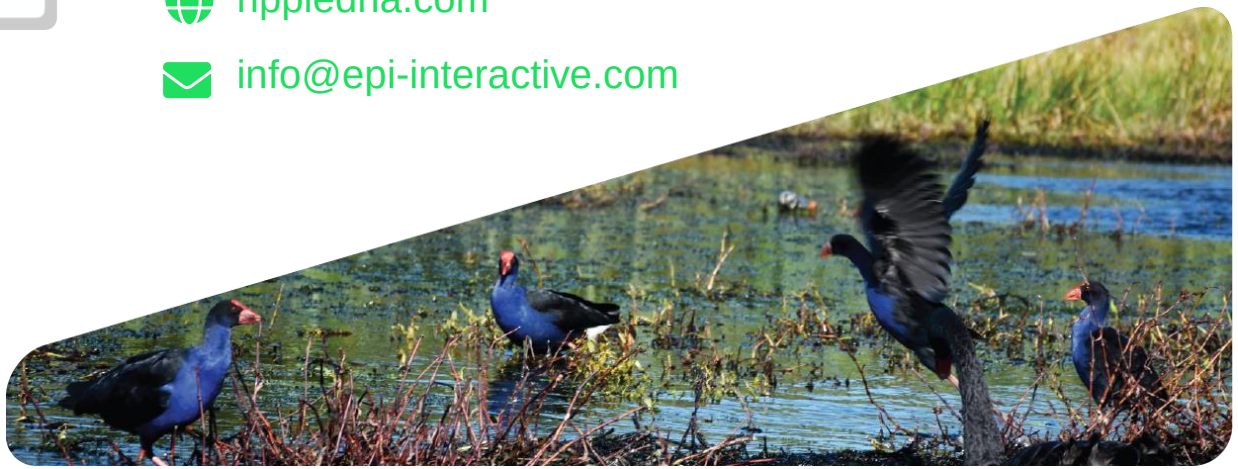
Project partners:

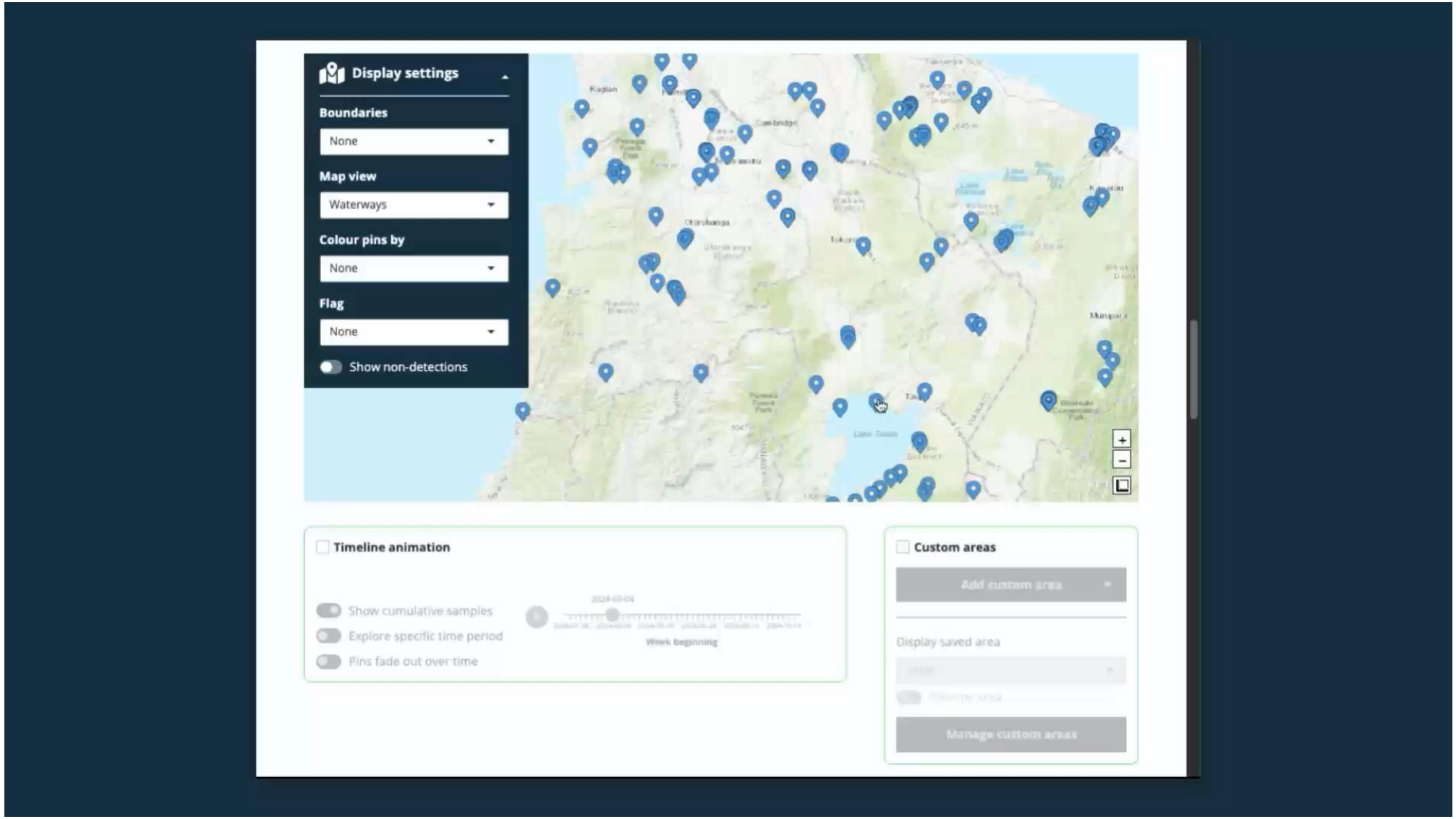
epi

WILDERLAB

MINDEROO FOUNDATION

HAWKE'S BAY REGIONAL COUNCIL
TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

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Timeline animation
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Explore specific time period
Pins fade out over time
Week beginning
Custom areas
Add custom area
Display saved area
Manage custom areas

Thanks!

Shaun Wilkinson PhD | Founder and CEO | Wilderlab