

Intro

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Today's topic:

Let's do a survey trip!

What's about?

About the **idea** of doing a **survey trip** to a **plan**

About **documentation**, saving and editing **data**

What does „survey trip“ mean?

It is to **control** extant and possible **habitats** of fish to gather, if fish are (still) living there, **what species**, sometimes even their quantity, and to gather **water parameters** and other **data** about the habitat.

It is **NOT** a collection trip

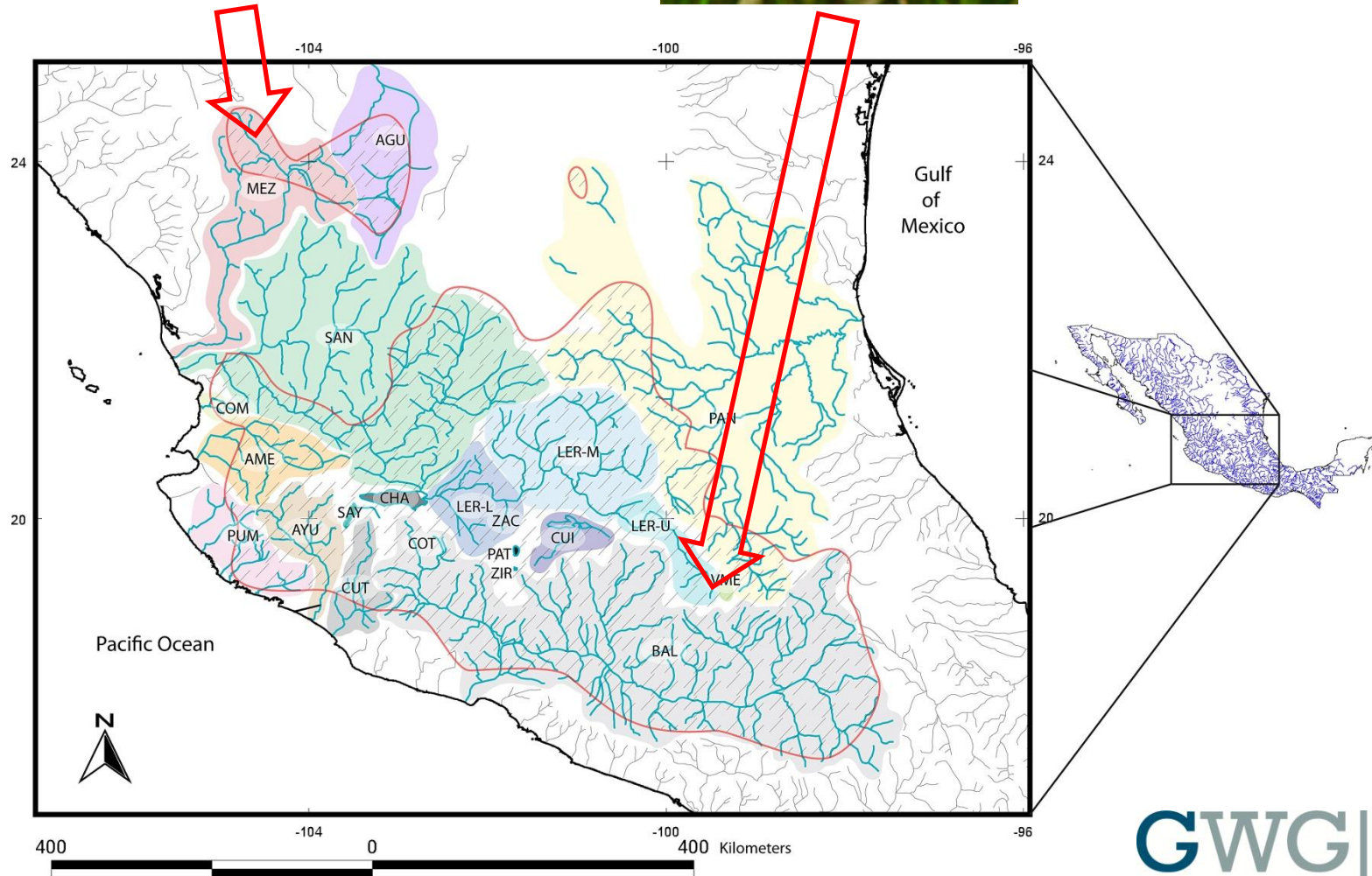
From an idea trip to a plan

About the part before we go on a survey – thinking, planning, thinking, planning, thinking...





250.000 km²



What we have to think about right from the beginning:

1. What **species** do we want to survey
2. How much **time** do we have
3. What size of **area** can we cover
4. How many **locations** can we do **per day**

Our suggestions

1. Calculate a speed of 60 - 80km/h by car
2. Do less than 250 km in total
3. Select only 5 locations per day
4. Calculate about 60mins per location

Why 60 – 80km/h?

Because you **never know the quality of the roads**; it can be dustroads or highways, but be prepared for the worst

Why not more than 250km/day?

Because you want to see **fish, not just roads**.

Why not more than 5 locations/day?

Because you need **time for one location**, you have ways from one location to the other to cover, and you need time for lunch.

Why 30 – 60mins/location?

Because you **need time to take parameters, to collect fish for pictures, to take pictures**. It is about accuracy, not speed.

A quick calculation:

Average time for 200km driving: 3 hrs

Average time for 5 locations survey: 5 hrs

Average time for lunch: 1 hr

In total: 9 hrs

So when you start at 9am, the trip ends at 6pm

Suggested area for two weeks:

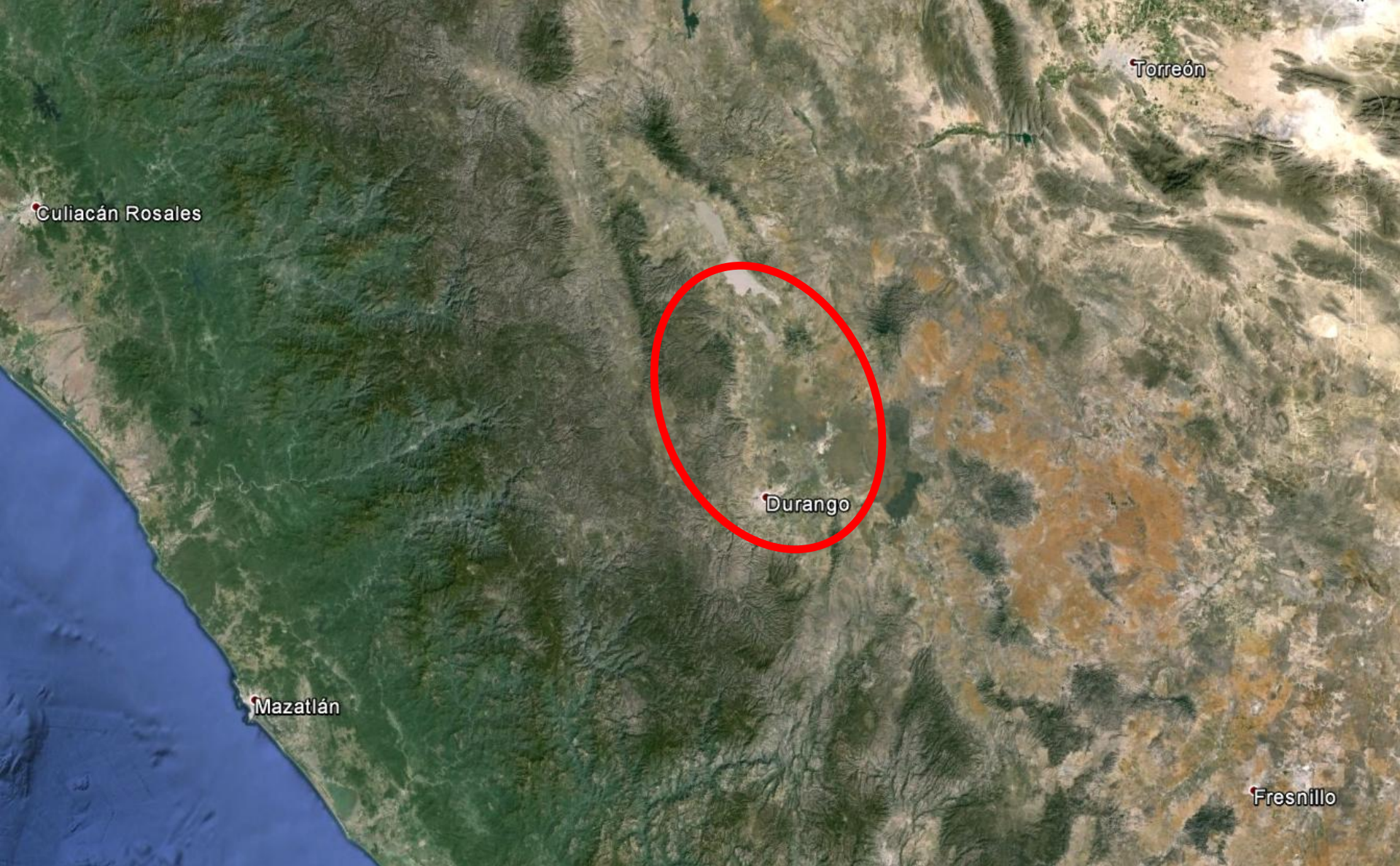
For rough surveys: 10,000km² (100 x 100km)

Precise surveys: 5,000km² (100 x 50km)

Suggested area for one week

Precise surveys: 5,000km² (100 x 50km)

Very precise surveys: 2,500km² (50 x 50km)



$120 \times 50\text{km} = 6,000\text{km}^2$



What helps us to decide about the locations?

1. Literature and Webpages
2. Google Earth Maps
3. Hydrographic Maps
(http://antares.inegi.org.mx/analisis/red_hidro/siatl/)
4. Species we want to survey

Reading gives us...

1. an idea where might be habitats
2. information about species to expect
3. Information about pollution
4. Information about distances
5. Historical distribution of fish

Google Earth gives us...

1. an idea about the habitats
2. GPS data
3. A route to go there
4. distances
5. The history of the waterbody

Hydrographic Maps give us...

1. an idea about watersheds
2. flow directions
3. a plan about the connection of waterbodies



How could be decided which location we should go to:

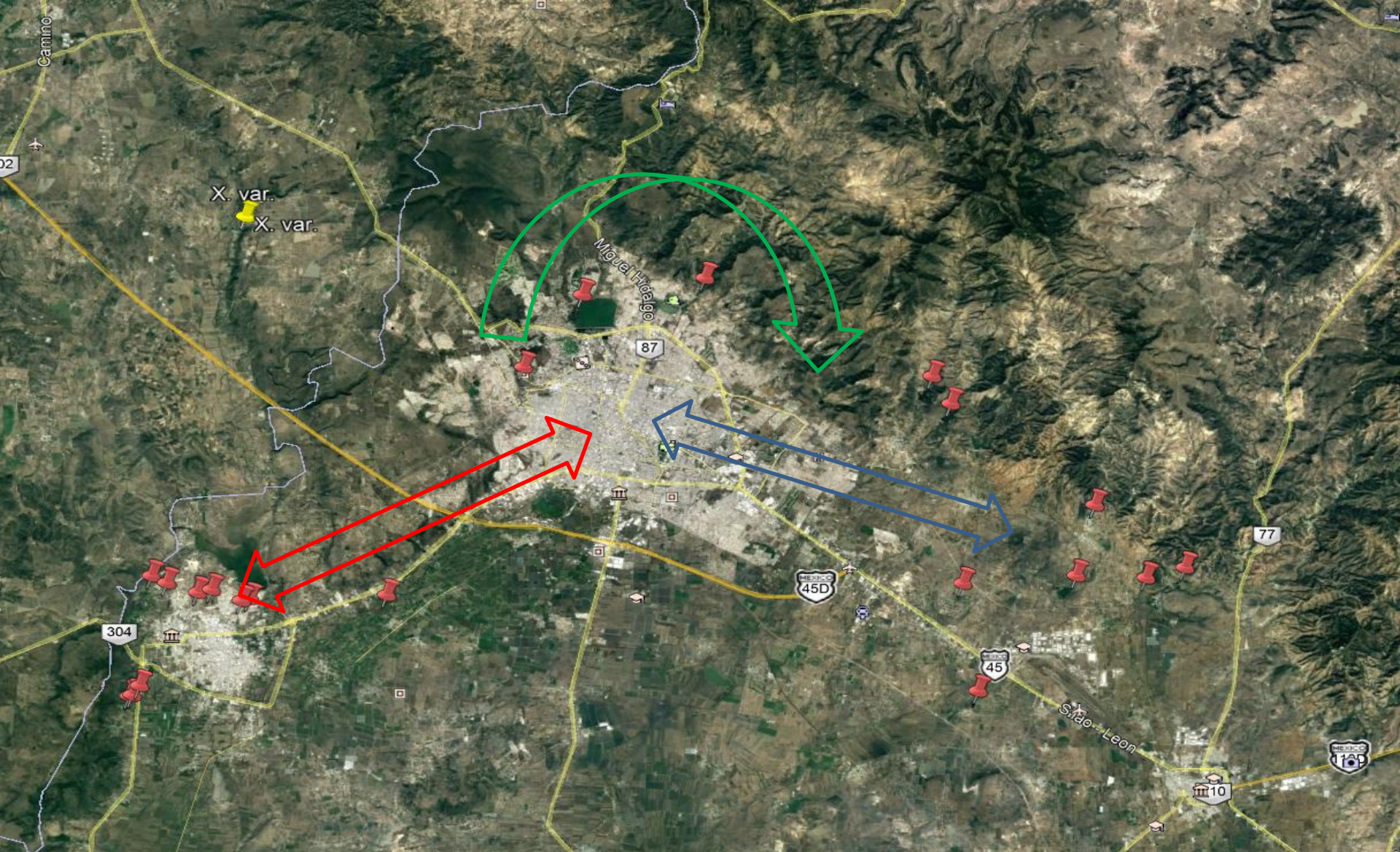
1. Was permanently water there?
2. Is the waterbody in the watershed where the fish live?
3. Is it a known location for the fish?
4. Is a known location close by?

The decision for certain species gives us:

1. A selection of known and possible habitats
2. An area to go
3. A hint of how to collect fish and what tools and materials would be needed
4. A central place to stay

Why a central place to stay?

1. Because you **don't have to take your luggage** daily with you
2. In case, a fish collection is part of the survey, **fish can stay in the hotel**
3. You can **save time** by not looking for a hotel daily



Day 1, around Irapuato, 5 locations:

Río Temasciato, north of San José Temascatio

20°42'13.32" N; 101°15'54" W

Junction of Río Guanajuato and Arroyo Zarco, north of Lo de Juárez

20°46'37.27" N; 101°20'18.6" W

Río Silao, northwest of Irapuato

20°43'10.2" N; 101°22'17.1" W

Río Silao, west of Irapuato

20°40'25.55" N; 101°24'09.66" W

Río Silao, southwest of Irapuato

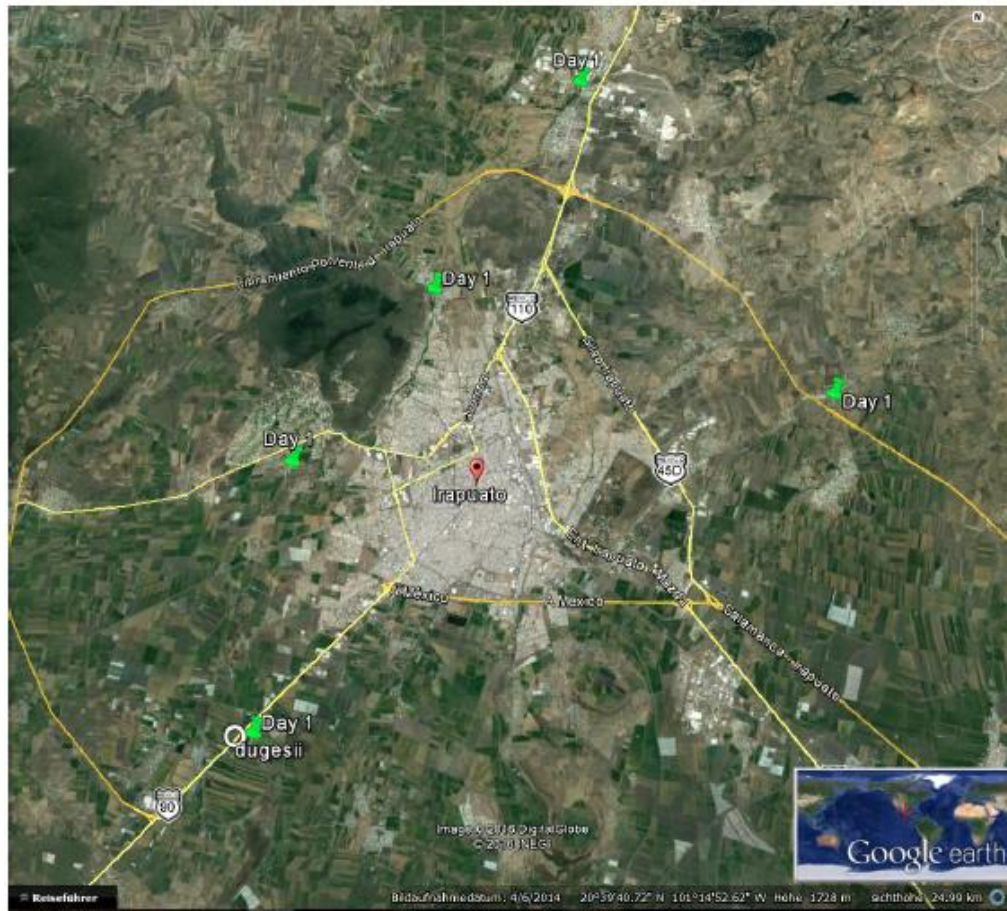
20°36'41.02" N; 101°24'10.09" W

Target species:

Xenotoca variata

Allotoca dugesii

Neotoca bilineata



What do we have so far?

1. A time frame for the survey
2. A species list
3. A target area
4. Number of locations
5. A place to stay
5. A route

What else needs to be cleared before the trip?

1. What kind of **vehicle** is proper
2. **How many people** we take with us and **who**
3. What kind of **equipment** can we get in place, what do we need to take with us
4. And very, very useful: a **local guide**





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Why the guide?

1. You will need **to ask** (for entrance)
2. You will need **to bargain**
3. You will need a **driver and translator**
4. You will need someone **skilled** with **appliances or methods**



What have we done so far:

We have an **area** selected to go, have a **route** planned, know which **species** we want to survey, we know **how long** we will stay, how many **locations** we will do, **who** will come with us, what **car** we have and who the **driver** will be, **where** we will **stay** and **sleep** and what **equipment** we will need and where to get it from.

What we haven't done:

Talked about costs for two weeks

1. Flight: 500 – 900 .-
2. Hotel: 250.-/divided through 4
3. Food: 250.-
4. Car plus gasoline plus road pricing: 500.-/ divided through 4
5. Guide: 300.-/divided through 4

Estimation when you are 4 persons: 800 – 1,000.- each

So let's book the flights and go...



About documentation, saving and editing data

Finally the practical part in the field – driving, walking, taking data and pictures, collecting fish, taking care...

What must be done on a survey?

1. Documentation of the habitat (photos, film)
2. Eventually documentation under water (photos, film)
3. Taking time and GPS
4. Taking water parameters and additional info
5. Sampling fish for photos

Before you start:

Decide who is doing what, **split the activities**
e.g.: one is taking time, GPS and water
parametres, another one is writing, another
one is taking underwater pictures and films,
aso...

This saves time and saves from arguments

When you approach a habitat:

1. When it is a private property or people are close by: be nice and ask for permission
2. Stay friendly any time to everybody
3. Approach carefully, don't destroy anything and don't leave garbage

First step: take photos and films

1. The **water** is still **clean** and the first impression can be caught on photo
2. The other ones need to prepare their things and are **not disturbing your pictures**
3. Only exception: take the **time at very first**





Second step: collect fish and water

1. Preparing fish for pictures takes time, and you need persons to cooperate in collecting
2. Cleaning fishing stuff after the pictures also takes time
3. Turbid water may influence water testing









Third step: take parameters.

1. Two persons are in need – one measuring, one writing -, so when fish are prepared for photos, two can take parameters and GPS.
2. For some descriptions of the location, it is helpful to discuss, so again two needed

Fourth step: leave with all your stuff

1. Many eyes see more than two, so when all cooperate, you won't forget anything
2. When all cooperate, you can leave the habitat quicker

About the content of data sheets

1. Date, time, location number and name and GPS data
2. Water parameters (pH, conductivity, O², altitude, water temperature, GH, KH, ...)
3. Fish species
4. Animals and plants at location
5. Habitat description

54	2017-03-24	9:30	Mexiko 2017	"TANASOPO" TRAMPOLIN
loc	date	time		name

Parameter						
depth	temperature	ph	µS	GPS W	GPS N	altitude (m)
surface	24,9	7,89	10.030	99°23' 43,128"	21°56'59,146"	355
				99°23' 43,0	21°56'59,1"	356

DATA

species	number	extraordinary facts
1 X. PONTZERUDAE		RIO TANASOPO - BLUEISH WATER, VERY CLEAR, WATERFALLS, POOLS, ROCKS, GRAVEL, SAND, GENTLY TO SWIFTY FLOWING,
2 GAMBUSIA VIRATA		
3 DRYOPA CATOSTOMOS		
4 HERICHTIS BANI		
5 B. GRACILIS		
6 U. TANASOPOGENSIS		
7 U. STEINDACHNERI		
8 P. MEXICANA		
9 A. MEXICANUS		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19 CONBARELIUS		

54	2017-03-24	09:30	Mexiko 2017		Rio Tamasopo in El Trampolin		
loc	date	time			name		
Parameter							
depth		temperature	ph	µS	GPS W	GPS N	altitude (m)
surface		24,9	7,89	10.030	99°23'43"128	21°56'59"149	355
species		number	extraordinary facts				
1	Xiphophorus montezumae		River. Bluish water, very clear. Waterfalls, pools, rocks, gravel. Moderate to swift current				
2	Gambusia vittata						
3	Tampichthys catostomops						
4	Nosferatu pamae						
5	Herichthys tamasopoensis						
6	Nosferatu steindachneri						
7	Poecilia limantouri						
8	Poeciliopsis gracilis						
9	Astyanax mexicanus						
10							
11							
12							
13							
14							
15							
16							
17							
18	Macrobrachium sp.						
19	Cambarellus spec.						

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