LARVAL SURVEYS FOR OPEN HABITATS

The Urban Malaria Control Program (UMCP), Dar es Salaam
WARD LEVEL mosquito larval habitat survey - Open habitats

Serial number of this form________________________________
Serial number on the map form____________________________
Date:________/________/__________
Municipality:____________________________     Ward:___________________________   MTAA:______________________________   10-cell unit:_________________
GPS(UTM/WGS84): Northing_____________ Easting______________

10-cell leader:__________

Habitat codes:
1: Puddles&tire tracks 5: Construction pits/Foundations/man-made holes 9: Other agriculture
2: Swampy areas 6: Water storage container 10: Stream/river bed
3: Mangrove Swamp 7: Rice paddy 11: Pond
4: Drain/Ditch 8: Matuta 12: Other (describe below)

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<td>Anoph.</td>
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</tbody>
</table>

Comments

New

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How to fill in the data sheets

• Plot No.
• House No. All unique and continuous
• Habitat ID.

• example
2 habitat types in same plot

1: Puddle

4: Drain
### Habitat codes:

1. Puddles & tire tracks
2. Swampy areas
3. Mangrove Swamp
4. Drain/Ditch
5. Construction pits/Foundations/man-made holes
6. Water storage container
7. Rice paddy
8. Matuta
9. Other agriculture
10. Stream/river bed
11. Pond
12. Other (describe below)

### Habitat description

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<tr>
<td>7</td>
<td>1</td>
<td>4</td>
<td>1 4</td>
<td></td>
<td>Large drain with flowing water</td>
<td>X</td>
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<td>7</td>
<td>2</td>
<td>1</td>
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<td>Small open shallow puddle</td>
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### Comments

- Irrigating local agriculture
- Beside the drain

**Habitat type = 1 to 12 codes**

**Habitat ID = how many different habitats in one plot**
Dry or No habitat ???

7: Rice field - dry habitat (with the potential of being a larval breeding site)

11: Pond

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Wet / Dry / no habitat

- **Both** wet and dry sites need description
### 2 weeks of ward level data sheets

**WARD LEVEL mosquito larval habitat survey - Open habitats**

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<tbody>
<tr>
<td>GPS(UTM/WGS84): Northing</td>
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**Habitat codes:**
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#### Plot ID 3 1 4 4
- Water flowing = water tap on
- Water depth:
  - Anoph.: Present
  - Culex: Present
- Larval stage:
  - Pupae: Present
- Plants: Present
- Wet?: Present

Comments: inbetween the houses

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**WARD LEVEL mosquito larval habitat survey - Open habitats**

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#### Plot ID 3 1 4 2
- Water tap turned off this week
- Water depth:
  - Anoph.: Present
  - Culex: Present
- Larval stage:
  - Pupae: Present
- Plants: Present
- Wet?: Present

Comments: inbetween the houses

---

**Same code = same site habitat & no more man-made construction**

**Full habitat description even if dry**
Habitat perimeter (m)

• walk around and **count your steps**
• one **step** = one **meter** (1m)
Plants Height

Tall Plants

Level = knee height

Short Plants
Floating Plants
Water depth

Put dipper into middle of water to find the water level

Water depth:
less than knee high=shallow;
more than knee high=deep
Mosquito types

- Mosquitoes breed in all types of water, it is important to check all water bodies during a larval survey.

- *Anopheles* larvae and *Culex* larvae physically distinguishable but the pupae are not physically distinguishable.
Mosquito types

Anopheles larva has no obvious siphon and lies parallel to the water surface.

Culex larva hang down from the water surface at an angle.
WARD LEVEL mosquito larval habitat survey - Open habitats

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Habitat codes:
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2: Swampy areas
3: Mangrove Swamp
4: Drain/Ditch
5: Construction pits/foundations/man-made holes
6: Water storage container
7: Rice paddy
8: Matapula
9: Other agriculture
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Habitat type = 12 codes

1: Puddles and Tyre Tracks
2: Swampy Areas
3: Mangrove swamp
4: Drains and Ditch
5: Construction pits, foundations and man-made holes
6: Water storage or other Man-made containers:
7: Rice paddy (Rice field)
8: Matuta
9: Other Agriculture
10: Stream and River beds
11: Ponds
12: Others (please describe them)
Is the site natural or man-made?

**Natural**
1: Puddles and Tyre Tracks
2: Swampy Areas
3: Mangrove swamp
4: Drains and Ditches
5: Construction pits, foundations, man-made holes
6: Water storage or other man-made containers
7: Rice paddy (Rice field)
8: Matuta
9: Other Agriculture
10: Stream and River beds
11: Ponds

Is it freshwater or salt water?

**Freshwater**
1: Puddles and Tyre Tracks
2: Swampy Areas
10: Stream and River beds
11: Ponds

**Saltwater**
3: Mangrove swamp

Is the water stagnant or flowing or should it be flowing?

**Stagnant**
2: Swampy Areas
11: Ponds

**Flowing**
10: Stream and River

Drain is straight and man-made and river meanders and is natural

Next slide
**Man-made**
1: Puddles and Tyre Tracks  
4: Drains and Ditches  
5: Construction pits, foundations and man-made holes  
6: Water storage or other man-made containers  
7: Rice paddy (Rice field)  
8: Matuta  
9: Other Agriculture

Is it agriculture?

- **Yes**
  - 7: Rice paddy (Rice field)  
  - 8: Matuta  
  - 9: Other Agriculture where water collects

- **No**
  - 1: Puddles and Tyre Tracks  
  - 5: Construction pits, foundations, man-made holes  
  - 6: Water storage or other man-made containers

What type of agriculture?

- **Stagnant**
  - 1: Puddles and Tyre Tracks  
  - 5: Construction pits, foundations, man-made holes  
  - 6: Water storage or other man-made containers

- **Flowing**
  - 4: Drains and Ditches

Is the water stagnant or flowing?

Can this water body be moved or lifted?

- **Yes**
  - 6: Water storage or other man-made containers

- **No**
  - 1: Puddles and Tyre Tracks  
  - 5: Construction pits, foundations, man-made holes incl. garden wells
1: Puddles and Tyre Tracks
1: Puddles and Tyre Tracks
2: Swampy Areas

• very high ground water table
• water present always or most of the year
• water source = ground water & rainwater
• often border a large water body e.g. river
• usually depth >0.5 m
• often tall reeds, short grass or / & floating plants
2: Swampy Areas

Long plants = bushes

Short plants = grass
2: Swampy Areas

Short plants = grass

Long plants = reeds
3: Mangrove swamp

• usually near the sea = **salty** water from the sea

• mangrove trees growing with water underneath

• mangrove trees **roots** exposed

• water is tidal, when **tide out**:  
  - small pools  
  - crab holes in mud  
  - shells on mangrove tree barks
3: Mangrove swamp

Tree roots in water

Sea water
3: Mangrove swamp

Crab holes

Sea shells on the mangrove tree
4: Drains and Ditches

• man-made

• Usually getting rid of water or to irrigate

• flowing water
  or if blocked with litter = stagnant water

• can be cement lined or just be dug in the ground
4: Drains and Ditches

Short plants

Tall plants
4: Drains and Ditches

Dry Habitat
5: Construction pits, foundations and man-made holes

- small to medium sized
- man-made habitats
- stagnant water
- water source = rain or ground water (garden wells), or filled by people
- function to collect water
- habitats in the ground - not moveable
5: Construction pits, foundations and man-made holes
5: Construction pits, foundations and man-made holes

Sharp man-made edges
5: Construction pits, foundations and man-made holes
6: Water storage or other Man-made containers:

- **any** container that holds water that could serve mosquitoes to breed (which were left for **more than a week**)

- **open water** storage tanks, barrels, tyres, livestock feeding trays

- Do not record all small buckets, flower pots, watering cans etc, since the water will be used and their position changed
6: Water storage or other Man-made containers:

Rain water = potential breeding site
7: Rice paddy (Rice field)

• plots where rice grows

• drying up = small pools = concentrated mosquito larvae
7: Rice paddy (Rice field)
7: Rice paddy (Rice field)
8: Matuta

- **raised ridges** on agricultural plots
- **man-made** furrows = hold water for longer duration
- larvae in very small depressions
8: Matuta
8: Matuta
9: Other Agriculture

- **stagnant** water bodies

- water source = irrigation or rainfall or high water table
9: Other Agriculture
10: Stream and River beds

- **Fast or slow flowing** water, although it can be seasonal

- Natural, not man-made

- twisting course **not** straight as for ditches and drains

- mosquito larvae habitats usually at
  - edges very slow flow or stagnant
  - seasonal rivers and creeks dry up at certain times in year and leave stagnant pooling water
10: Stream and River beds

Flow = water current
10: Stream and River beds

10: River

2: Swampy Areas
11: Ponds

- medium to large size **stagnant** water
- water present for several months in the year
- rainy season (depth can be >0.5 m, in the middle of habitat)
11: Ponds

open water
12: Others

- any other stagnant water bodies that could be mosquito larval habitats

- please make sure you have checked the definitions of habitat categories 1 to 11

- please describe the habitat recorded under category 12