Amphibian data for biofilm MS

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```r
library(tidyverse) # for cleaning and viewing data
library(gt) # pretty stats tables
library(broom) # cleaning for gt
library(here) # for importing data
library(lubridate) # for date cleaning and use
```

Swabs

```r
# import wrangled data
swab_may22 <- read.csv(here("amphib-data", "swab_may2022_ninesites.csv"))
swab_mj <- read.csv(here("amphib-data", "swab_mar-jun22_filtered.csv"))

# #wrangle data that match our sampling

# swab_may22 <- read.csv(here("amphib-data", "allmonths_swabs_updated 2024-10-28.csv")) %>
#   filter(code %in% c(
#     "CABIN", "WEST", "GRAMPS",
#     "GDPND004", "GDPND005", "GDPND009", "GDPND006",
#     "PRPND004", "PRPND009", "PRPND010"
#   )) %>%
#     filter(sampling_id %in% c(
#     "May_22"
#   ))
# write.csv(swab_may22, "swab_may2022_ninesites.csv", row.names = FALSE)


# swab_mj <- read.csv(here("amphib-data", "allmonths_swabs_updated 2024-10-28.csv")) %>%
#   filter(code %in% c(
```

```
#       "CABIN", "WEST", "GRAMPS",
#       "GDPND004", "GDPND005", "GDPND009", "GDPND006",
#       "PRPND004", "PRPND009", "PRPND010"
#   )) %>%
#     filter(sampling_id %in% c(
#       "Mar_22", "May_22", "Jun_22"
#   ))
# write.csv(swab_mj, "swab_ma-jun22_filtered.csv", row.names = FALSE)
```

Calculate Bd prev per site

May 2022

```
swab_summary <- swab_may22 %>%
group_by(code) %>%
  summarise(
    n_frogs = n(),
    bd_positive = sum(infected == 1),
    prevalence = round(100 * bd_positive / n_frogs, 1),
    avg_load_bd_pos = round(mean(zsp_eq[infected == 1], na.rm = TRUE), 2)
  )

swab_summary %>%
   gt() %>%
  cols_label(
    code = "Site",
    n_frogs = "Number Swabbed",
    bd_positive = "Bd Positive",
    prevalence = "Bd Prevalence (%)",
    avg_load_bd_pos = "Avg Bd Load (ZE)"
  ) %>%
  tab_header(
    title = "Summary of Bd Infection by Site: May 2022"
  ) %>%
  fmt_number(
    columns = c(prevalence, avg_load_bd_pos),
    decimals = 0
  ) %>%
  tab_style(
    style = list(
```

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    cell_text(weight = "bold")
  ),
  locations = cells_column_labels(everything())
)
```

Summary of Bd Infection by Site: May 2022

Site	Number Swabbed	Bd Positive	Bd Prevalence (%)	Avg Bd Load (ZE)
CABIN	6	5	83	503
GDPND005	1	1	100	1
GDPND006	2	0	0	NaN
GDPND009	2	0	0	NaN
GRAMPS	5	0	0	NaN
PRPND009	5	0	0	NaN
PRPND010	9	4	44	10,038
WEST	10	0	0	NaN

Mar - June 2022

```
swab_summary_mj <- swab_mj %>%
group_by(code) %>%
  summarise(
    n_frogs = n(),
    bd_positive = sum(infected == 1),
    prevalence = round(100 * bd_positive / n_frogs, 1),
    avg_load_bd_pos = round(mean(zsp_eq[infected == 1], na.rm = TRUE), 2)
  )

swab_summary_mj %>%
  gt() %>%
  cols_label(
    code = "Site",
    n_frogs = "Number Swabbed",
    bd_positive = "Bd Positive",
    prevalence = "Bd Prevalence (%)",
    avg_load_bd_pos = "Avg Bd Load (ZE)"
  ) %>%
  tab_header(
    title = "Summary of Bd Infection by Site: Mar-Jun 2022"
```

```
) %>%
fmt_number(
  columns = c(prevalence, avg_load_bd_pos),
  decimals = 0
) %>%
tab_style(
  style = list(
    cell_text(weight = "bold")
  ),
  locations = cells_column_labels(everything())
)
```

Summary of Bd Infection by Site: Mar-Jun 2022

Site	Number Swabbed	Bd Positive	Bd Prevalence (%)	Avg Bd Load (ZE)
CABIN	40	17	42	420
GDPND005	6	2	33	5
GDPND006	17	5	29	2,812
GDPND009	12	0	0	NaN
GRAMPS	23	4	17	24
PRPND004	54	4	7	181
PRPND009	29	1	3	17
PRPND010	40	7	18	5,745
WEST	51	7	14	88

Visual Encounter Survey

```
#wrangle data that match our sampling
ves_may <- read.csv(here("amphib-data", "cln_survey_data2025-04-21.csv")) %>%
  mutate(date = ymd(date)) %>%  # convert character to Date
  filter(month(date) == 5 & year(date) == 2022) %>%
  filter(site_code %in% c(
    "CABIN", "WEST", "GRAMPS",
    "GDPND004", "GDPND005", "GDPND009", "GDPND006",
    "PRPND004", "PRPND009", "PRPND010"
  )) %>%
  select(
    site_code, date,
```

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    raca_adult, raca_juvenile,
    radr_adult, radr_juvenile,
    raxx_adult_or_juvenile,
    bubo_adult, bubo_juvenile,
    psre_adult, psre_juvenile,
    taxx_adult, taxx_juvenile,
    temp
  ) %>%
  mutate(taxx_juvenile = as.numeric(taxx_juvenile))

#write.csv(ves_may, "ves_may22_filtered.csv", row.names = FALSE)

ves_mj <- read.csv(here("amphib-data", "cln_survey_data2025-04-21.csv")) %>%
   mutate(date = ymd(date)) %>%  # convert character to Date
  filter(month(date) %in% c(3, 5, 6) & year(date) == 2022) %>%
  filter(site_code %in% c(
    "CABIN", "WEST", "GRAMPS",
    "GDPND004", "GDPND005", "GDPND009", "GDPND006",
    "PRPND004", "PRPND009", "PRPND010"
  )) %>%
   select(
    site_code, date,
    raca_adult, raca_juvenile,
    radr_adult, radr_juvenile,
    raxx_adult_or_juvenile,
    bubo_adult, bubo_juvenile,
    psre_adult, psre_juvenile,
    taxx_adult, taxx_juvenile,
    temp
  )

ves_spring_2022_summary <- ves_mj %>%
  mutate(taxx_juvenile = as.numeric(taxx_juvenile)) %>%
  group_by(site_code) %>%
 summarise(
    across(
      c(raca_adult, raca_juvenile, radr_adult, radr_juvenile,
        raxx_adult_or_juvenile, bubo_adult, bubo_juvenile,
        psre_adult, psre_juvenile, taxx_adult, taxx_juvenile),
      ~sum(.x, na.rm = TRUE),
      .names = "{.col}_summed"
```

```
    ),
    avg_temp = mean(temp, na.rm = TRUE),
    .groups = "drop"
  )
```

VES tables

```
ves_may %>%
  select(-date) %>%
  gt() %>%
  cols_label(
    site_code = "Site",
    raca_adult = "RACA Adult",
    raca_juvenile = "RACA Juvenile",
    radr_adult = "RADR Adult",
    radr_juvenile = "RADR Juvenile",
    raxx_adult_or_juvenile = "RAXX",
    bubo_adult = "BUBO Adult",
    bubo_juvenile = "BUBO Juvenile",
    psre_adult = "PSRE Adult",
    psre_juvenile = "PSRE Juvenile",
    taxx_adult = "TAXX Adult",
    taxx_juvenile = "TAXX Juvenile",
    temp = "Temp (°C)"
  ) %>%
  fmt_number(
    columns = -c(site_code),
    decimals = 0
  ) %>%
  tab_header(
    title = "Amphibian Visual Encounter Survey and Water Temperature (May 2022)"
  ) %>%
  tab_style(
    style = cell_text(weight = "bold"),
    locations = cells_column_labels(everything())
  )
```

Amphibian Visual Encounter Survey a

Site	RACA Adult	RACA Juvenile	RADR Adult	RADR Juvenile	RAXX	BUBO Adu
CABIN	0	4	0	0	19	

GRAMPS	0	0	0	0	0
GDPND006	0	0	0	0	0
GDPND005	0	0	0	0	0
GDPND004	0	0	0	0	0
GDPND009	0	0	0	0	0
PRPND010	0	0	0	0	1
PRPND009	0	0	0	0	0
PRPND004	0	0	0	0	0
WEST	0	0	0	0	6