TRAINING ON

Planning and Design of Smart Infrastructure for Biodiversity Protection

25–27 April 2022

Rhino Lodge, Sauraha, Nepal

TRAINING ON

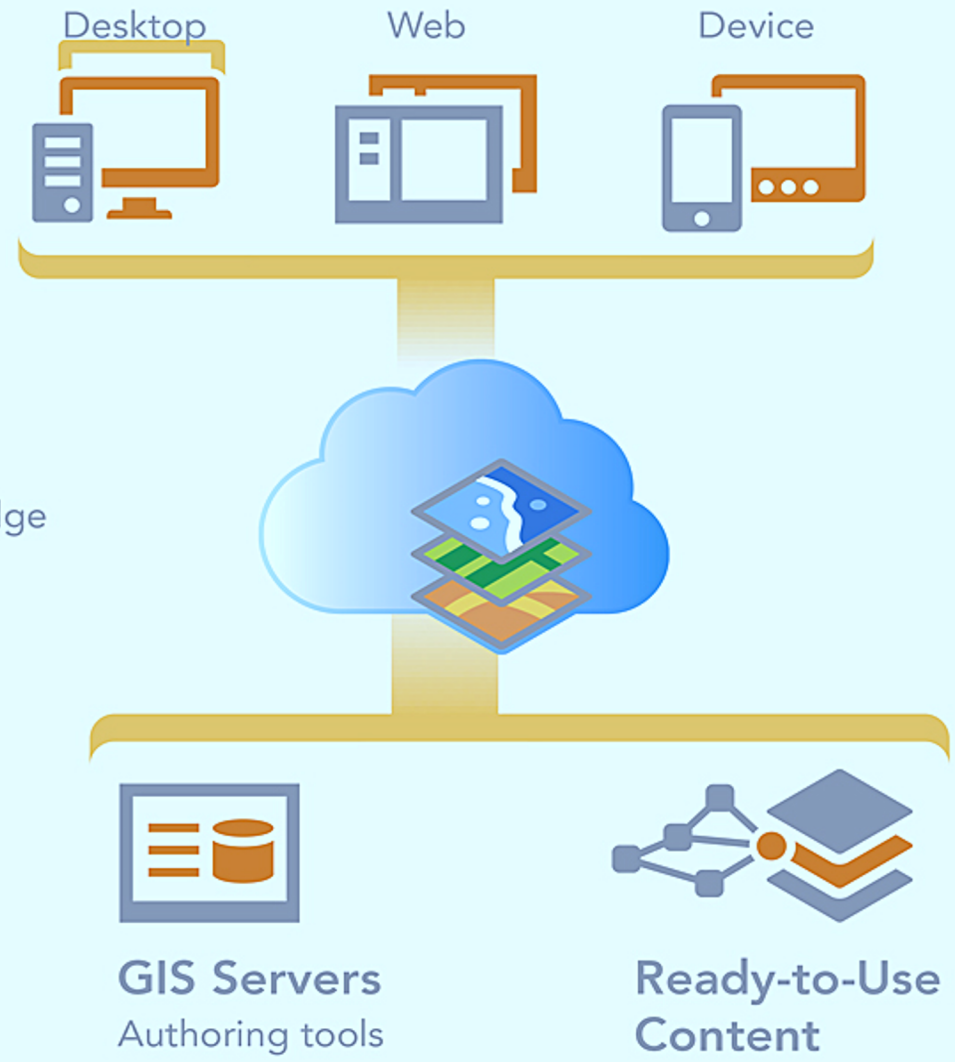
Web-based tools for BBA and stakeholder engagement

Overview

- Web GIS architecture
- Foundation project life cycles
- Key components
  - Data Inventory
  - Data Collection
  - Mapping and analysis
  - Communication / Stakeholder engagement

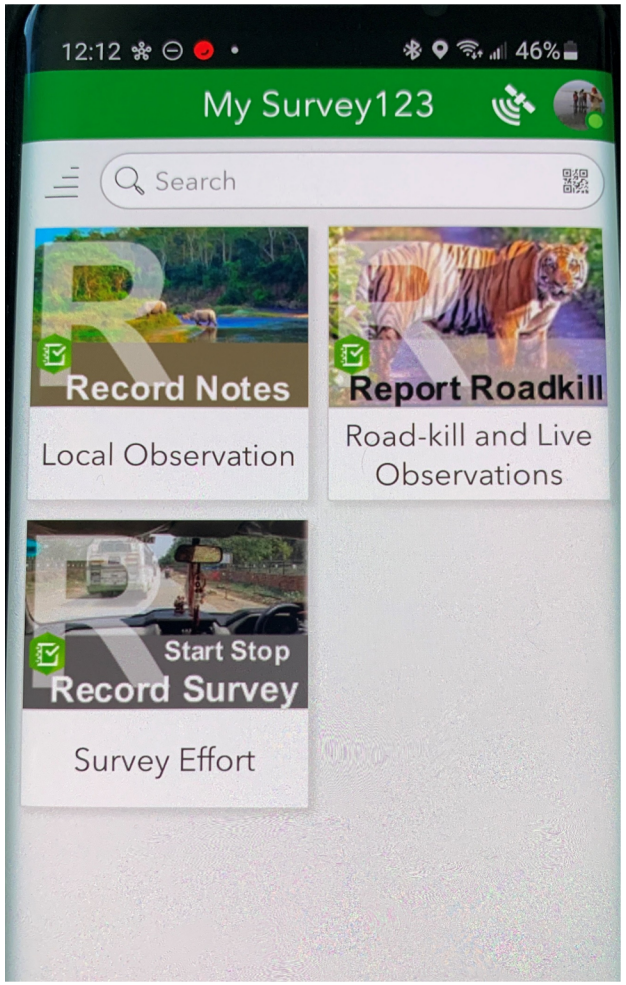
System Architecture

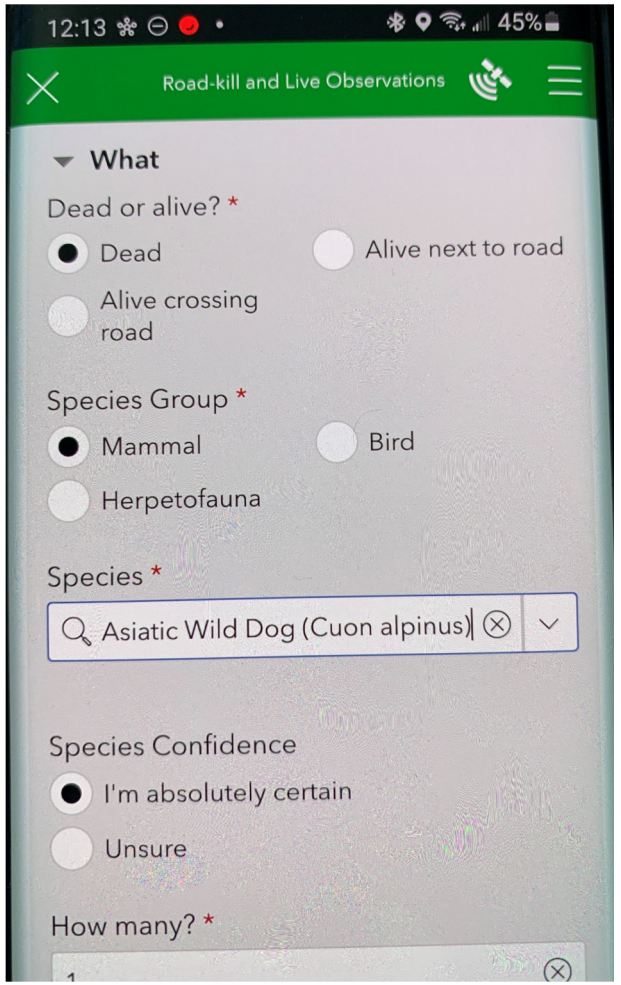
Web GIS

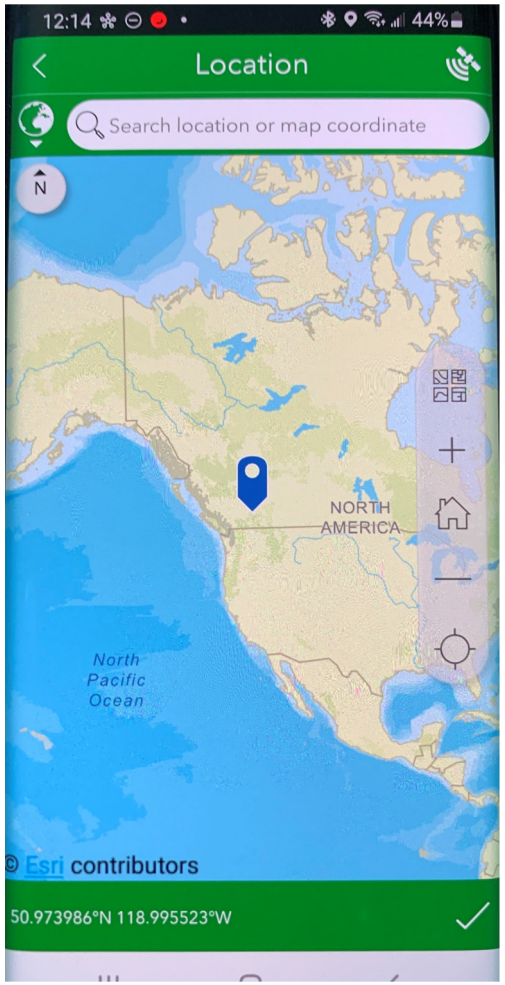


Foundational & Iterative

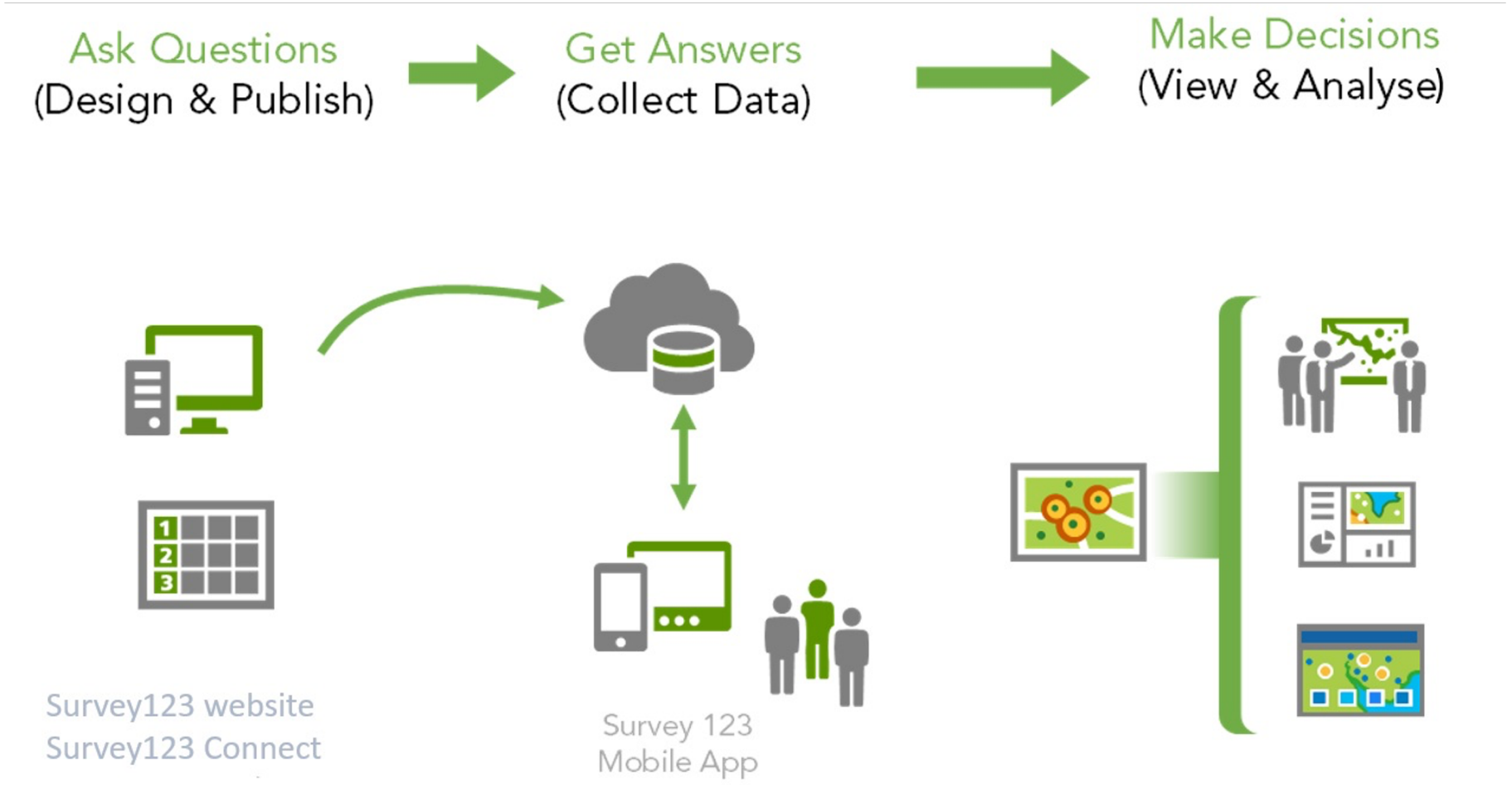
Data collection



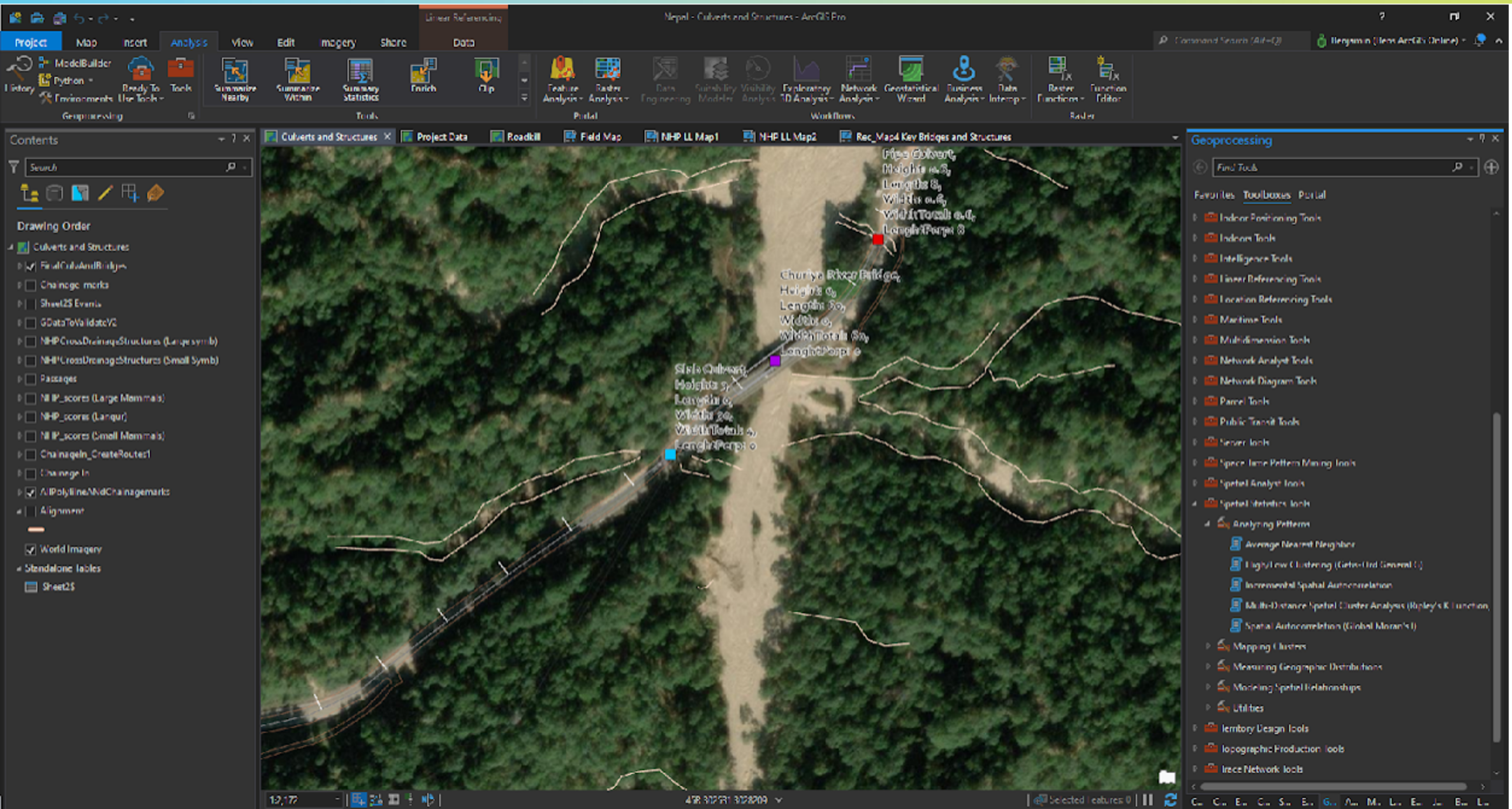




Data collection



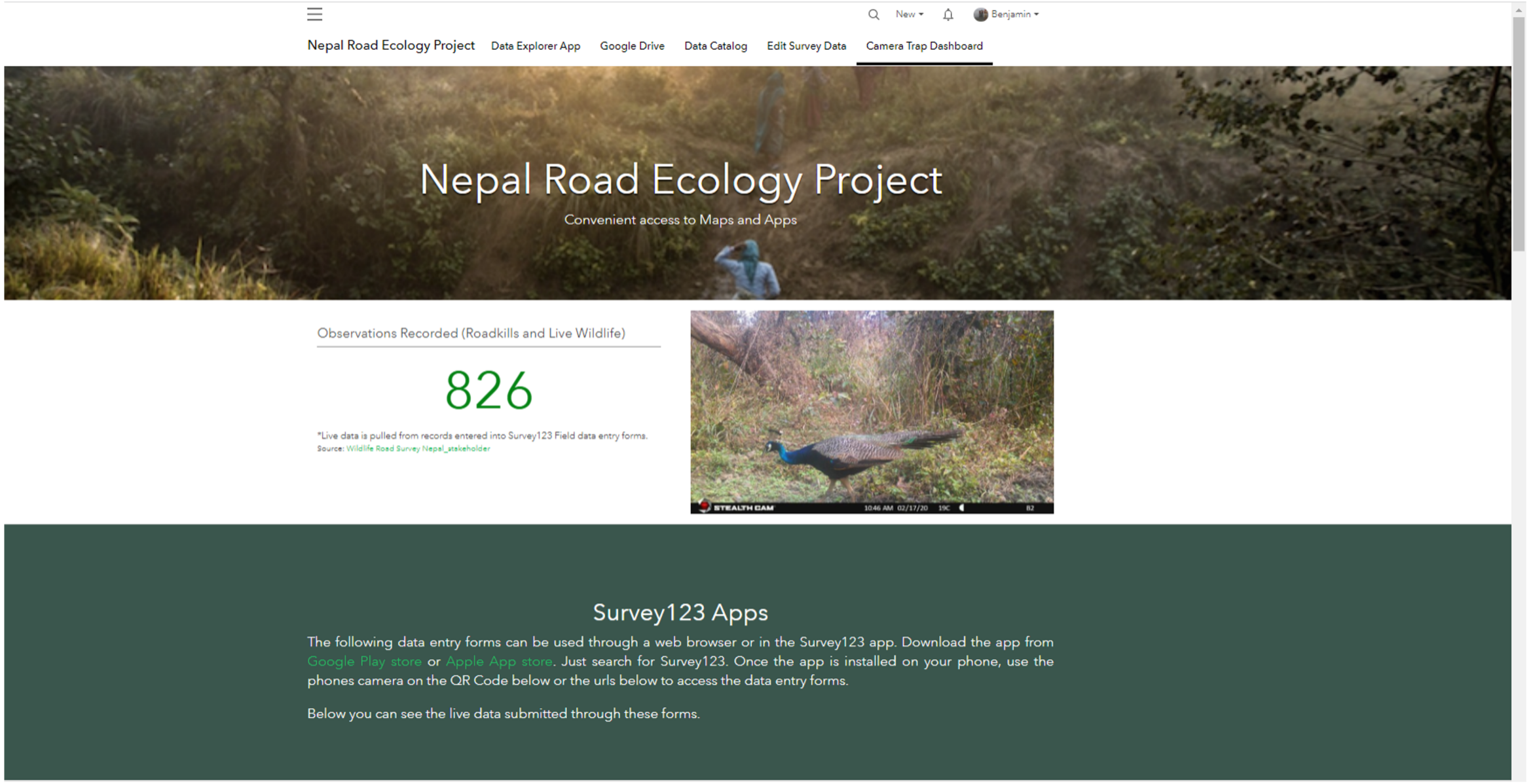
Mapping & Analysis



Mapping & Analysis

```
# call the server part
# check credentials returns a function to authenticate users
res_auth <- secure_server(
  check_credentials = check_credentials(credentials)
)

output$auth_output <- renderPrint({
  reactiveValuesToList(res_auth)
})


############################
conn<-dbConnect("PostgreSQL",dbname='sipd_nepal',host='nepal.ck4ut1vbeoto.ca-central-1.rds.amazonaws.com',port='5432',user='Sadbhava',password='****')
dt <- dbReadTable(conn, "tbl_imagedata")
cams <  st_read(conn, "cameralocation") #if spatial data
dbDisconnect(conn)

dt$hour <  hour(hms(dt$time)) #TODO: fix in postGRES
dht <  dt #keep a copy of the dataset with humans
recs <  length(dt[,1])
dt <- filter(dt, spp!="Human")
hrecs <- recs - length(dt[,1])

############################

ls0 <- dt %>% group_by(location)%>% summarize(StartDate = min(startdate),FirstPhoto = min(pdatetime), LastPhoto= max(pdatetime),   Abundance = sum(count, na.rm = TRUE), Richness = length(unique(spp)) )
#summarize by spp and location so we can calculate diversity index.
ls1 <- dt %>% group_by(location, spp)%>% summarize(StartDate = min(startdate),FirstPhoto = min(pdatetime), LastPhoto= max(pdatetime), Abundance = sum(count, na.rm = TRUE), Richness = length(unique(spp)) ) %>% data.frame()
ls2 <- ls1 %>% select(location, spp, Abundance) %>% spread(spp, Abundance) %>% data.frame()
ls2[is.na(ls2)] <- 0
############################
#calculate diversity
#using the Shannon Wiener index assumes that the sample for site was collected randomly.
#https://www.flutterbys.com.au/stats/tut/tut11.2.html
#calculate diversity
```

Stakeholder engagement



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THANK YOU

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