

TRAINING ON Planning and Design of Smart Infrastructure for Biodiversity Protection

25–27 April 2022

Rhino Lodge, Sauraha, Nepal



TRAINING ON

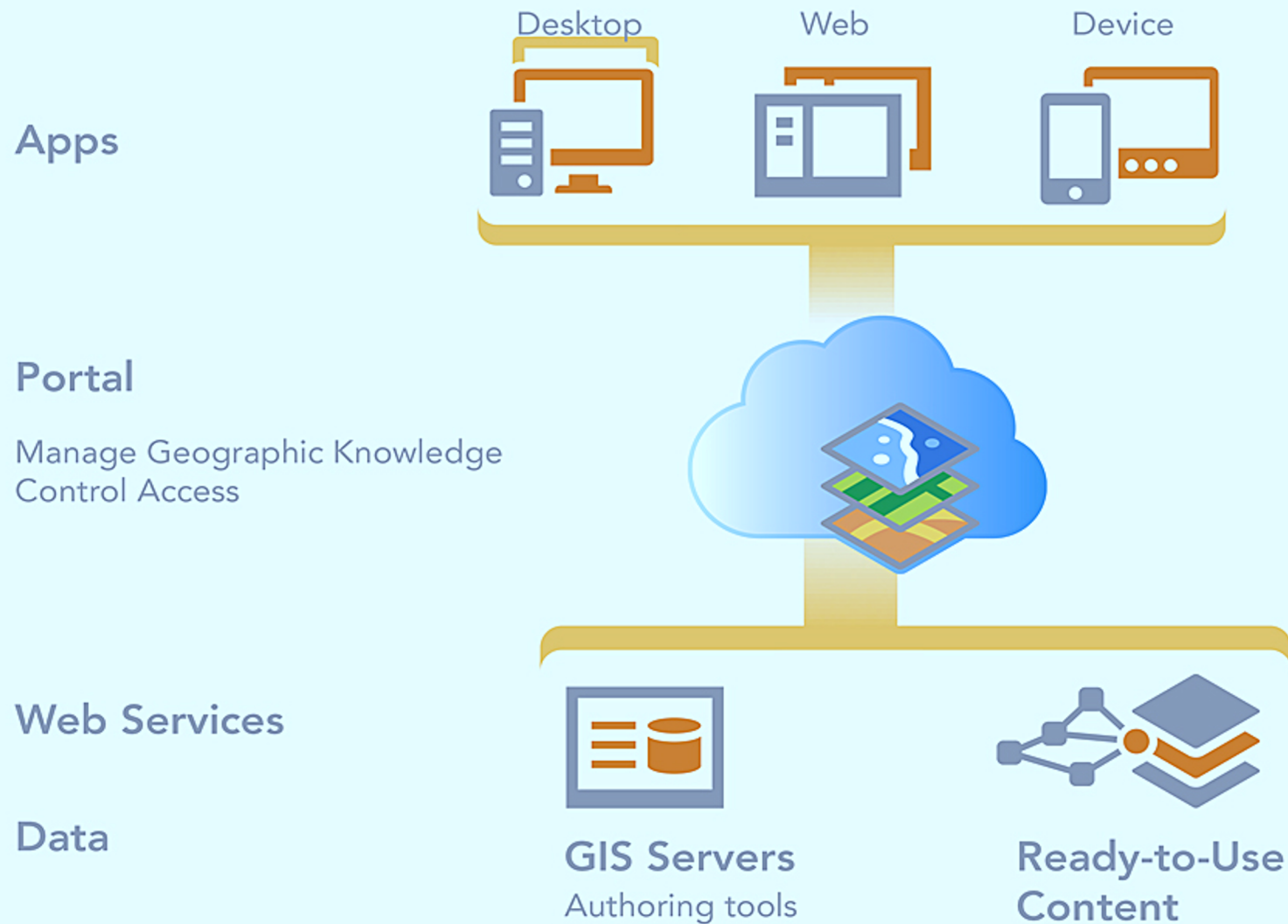
Web-based tools for BBA and stakeholder engagement



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



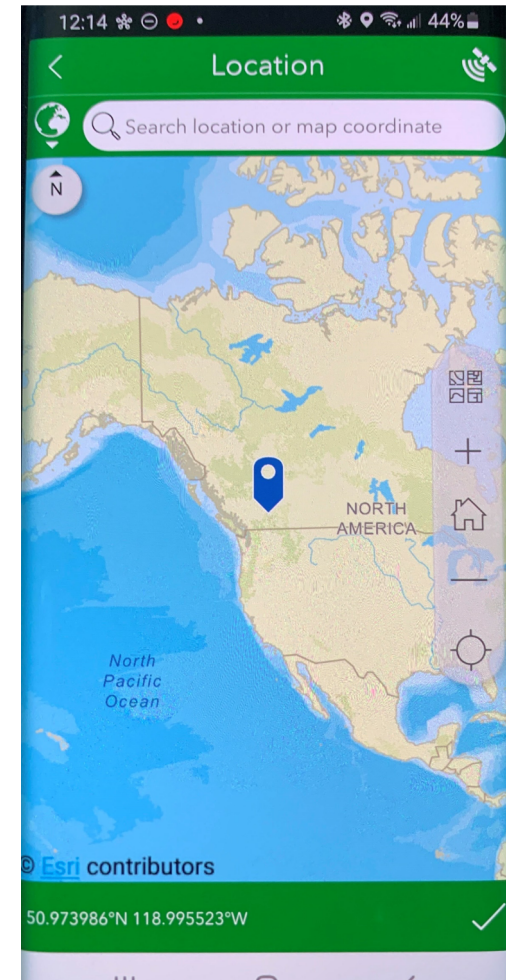
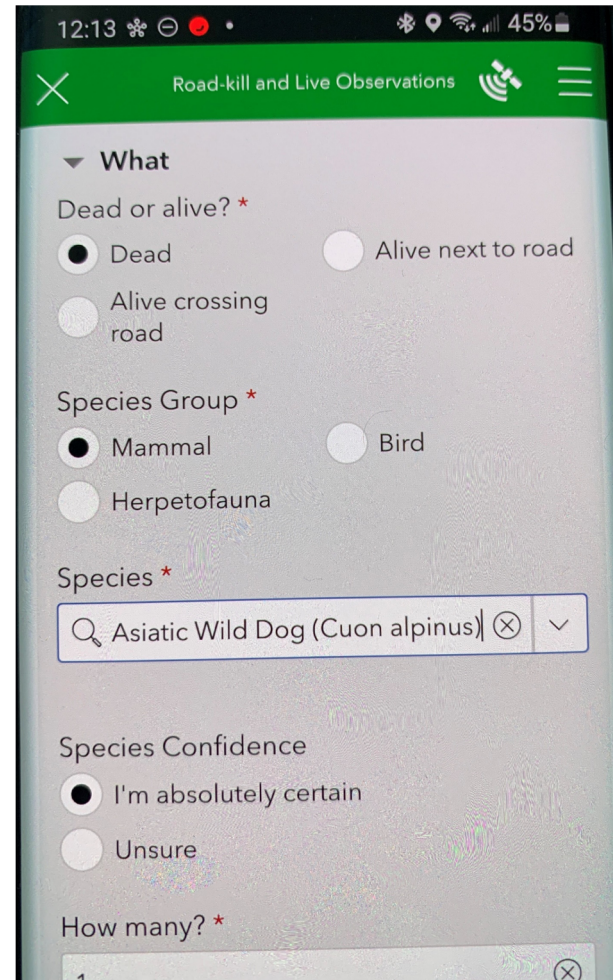
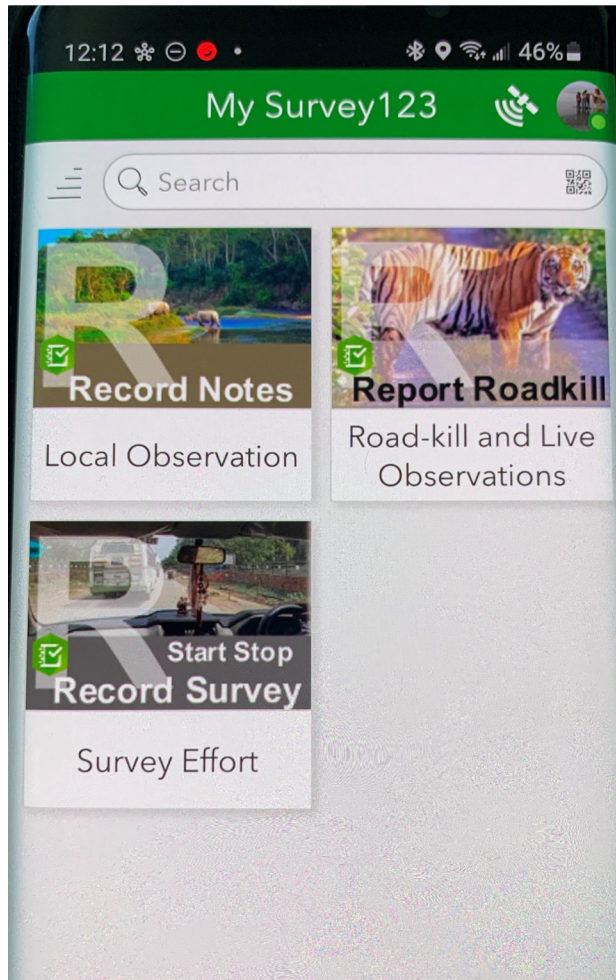
Web GIS

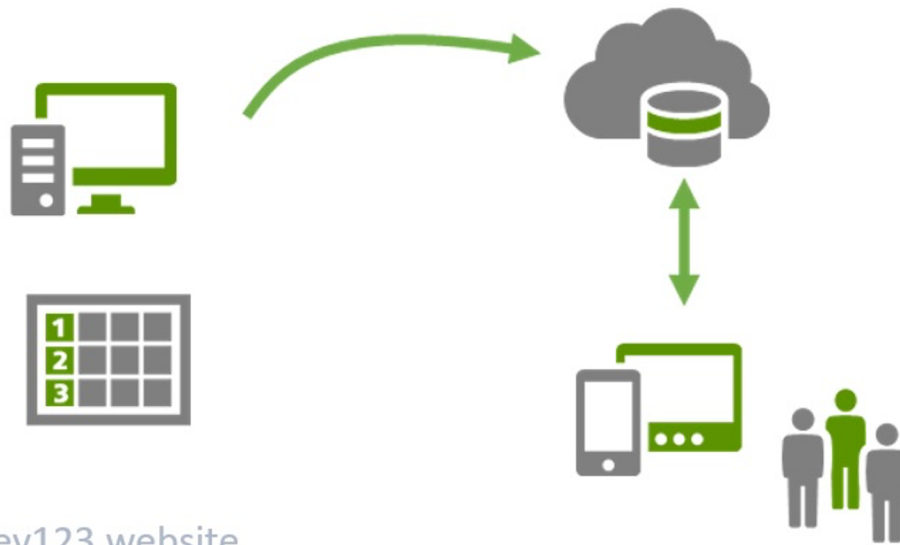


Foundational & Iterative



Data collection





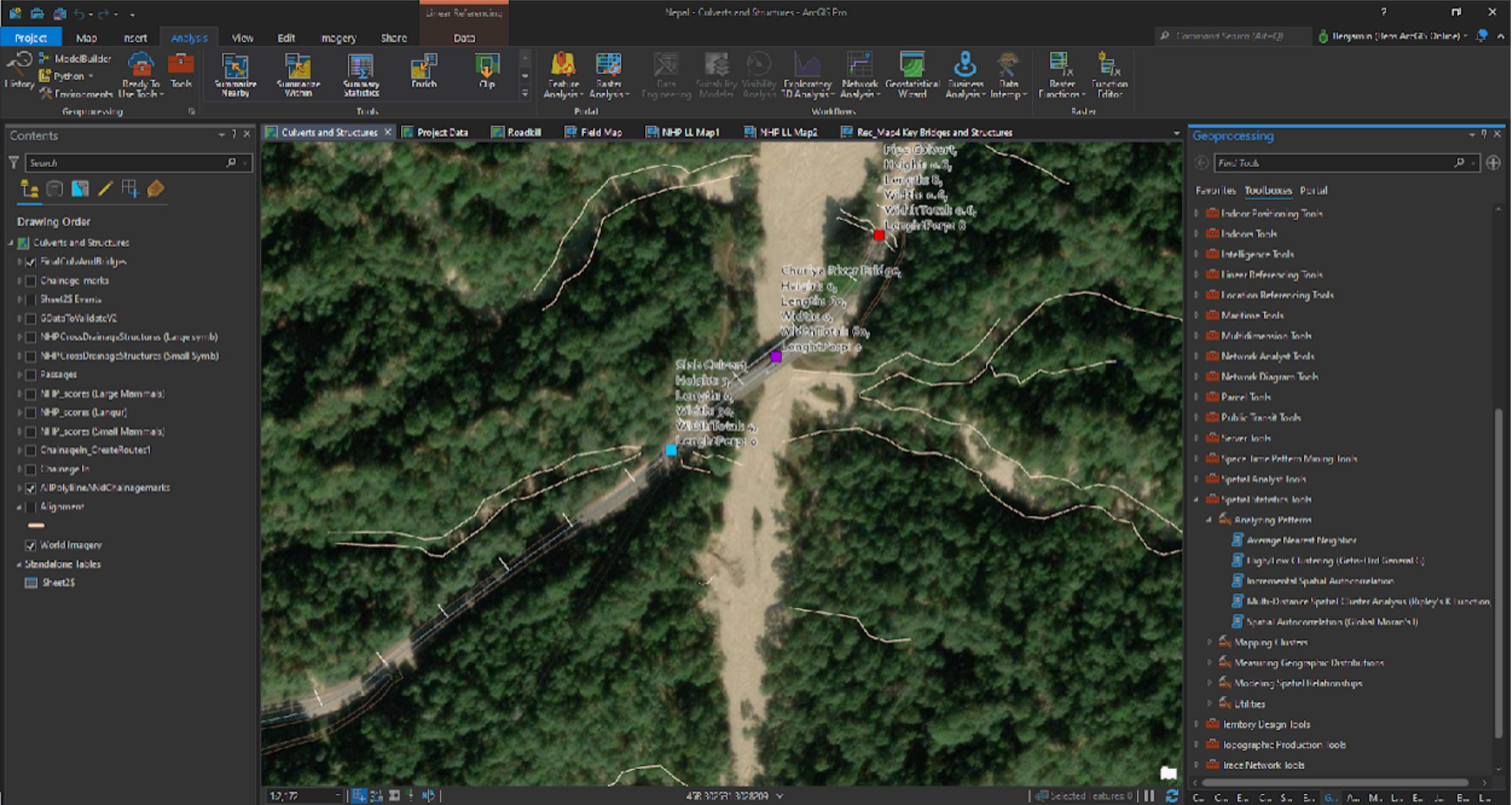
Survey123 website
Survey123 Connect



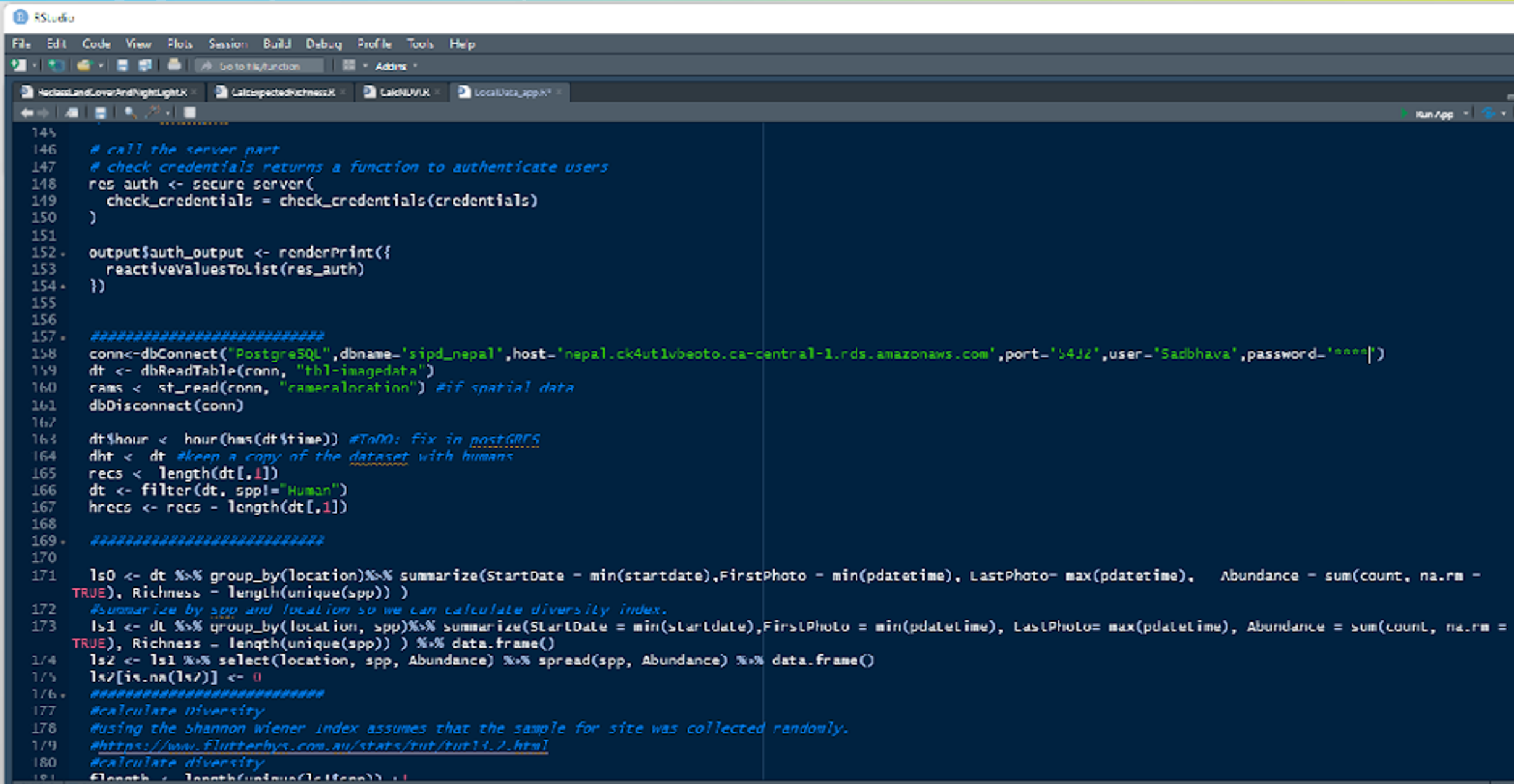
Survey 123
Mobile App



Mapping & Analysis



Mapping & Analysis

A screenshot of the RStudio interface. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. Below the menu is a toolbar with icons for file operations and a 'Run' button. The main editor window displays R code with line numbers from 145 to 191. The code includes comments in blue and function calls in black. It connects to a PostgreSQL database, reads data, filters for human species, and calculates diversity indices using the Shannon-Wiener index. The code is as follows:

```
145  
146 # call the server part  
147 # check credentials returns a function to authenticate users  
148 res_auth <- secure_server(  
149   check_credentials = check_credentials(credentials)  
150 )  
151  
152 output$auth_output <- renderPrint(  
153   reactiveValuesToList(res_auth)  
154 )  
155  
156  
157 #####  
158 conn<-dbConnect("PostgreSQL",dbname='sipd_nepal',host='nepal.ck4utlvbeoto.ca-central-1.rds.amazonaws.com',port='5432',user='Sadbhava',password='****')  
159 dt <- dbReadTable(conn, "tbl-imagedata")  
160 cams <- st_read(conn, "cameralocation") #if spatial data  
161 dbDisconnect(conn)  
162  
163 dt$hour <- hour(hms(dt$time)) #ToDo: fix in postgres  
164 dht <- dt #keep a copy of the dataset with humans  
165 recs <- length(dt[,1])  
166 dt <- filter(dt, spp!="Human")  
167 hrecs <- recs - length(dt[,1])  
168  
169 #####  
170  
171 ls0 <- dt %>% group_by(location)%>% summarize(StartDate = min(startdate),FirstPhoto = min(pdatetime), LastPhoto= max(pdatetime), Abundance = sum(count, na.rm =  
TRUE), Richness = length(unique(spp)) )  
172 #summarize by spp and location so we can calculate diversity index.  
173 ls1 <- dt %>% group_by(location, spp)%>% summarize(StartDate = min(startdate),FirstPhoto = min(pdatetime), LastPhoto= max(pdatetime), Abundance = sum(count, na.rm =  
TRUE), Richness = length(unique(spp)) ) %>% data.frame()  
174 ls2 <- ls1 %>% select(location, spp, Abundance) %>% spread(spp, Abundance) %>% data.frame()  
175 ls2[is.na(ls2)] <- 0  
176 #####  
177 #calculate diversity  
178 #using the shannon wiener index assumes that the sample for site was collected randomly.  
179 #https://www.Flutterhys.com.au/stats/tut/tut14.2.html  
180 #calculate diversity  
181 length <- length(unique(ls1$species)) + 1
```


Stakeholder engagement



Nepal Road Ecology Project

Convenient access to Maps and Apps

Observations Recorded (Roadkills and Live Wildlife)

826

*Live data is pulled from records entered into Survey123 Field data entry forms.
Source: [Wildlife Road Survey Nepal_stakeholder](#)



Survey123 Apps

The following data entry forms can be used through a web browser or in the Survey123 app. Download the app from [Google Play store](#) or [Apple App store](#). Just search for Survey123. Once the app is installed on your phone, use the phones camera on the QR Code below or the urls below to access the data entry forms.

Below you can see the live data submitted through these forms.

NHP DEMOS

THANK YOU

ADB



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