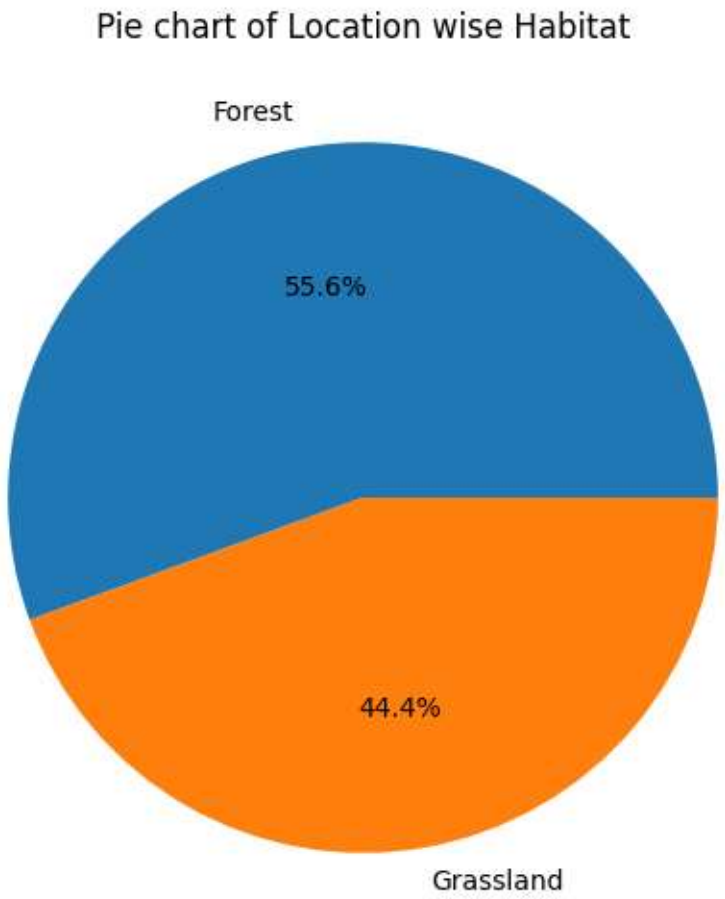
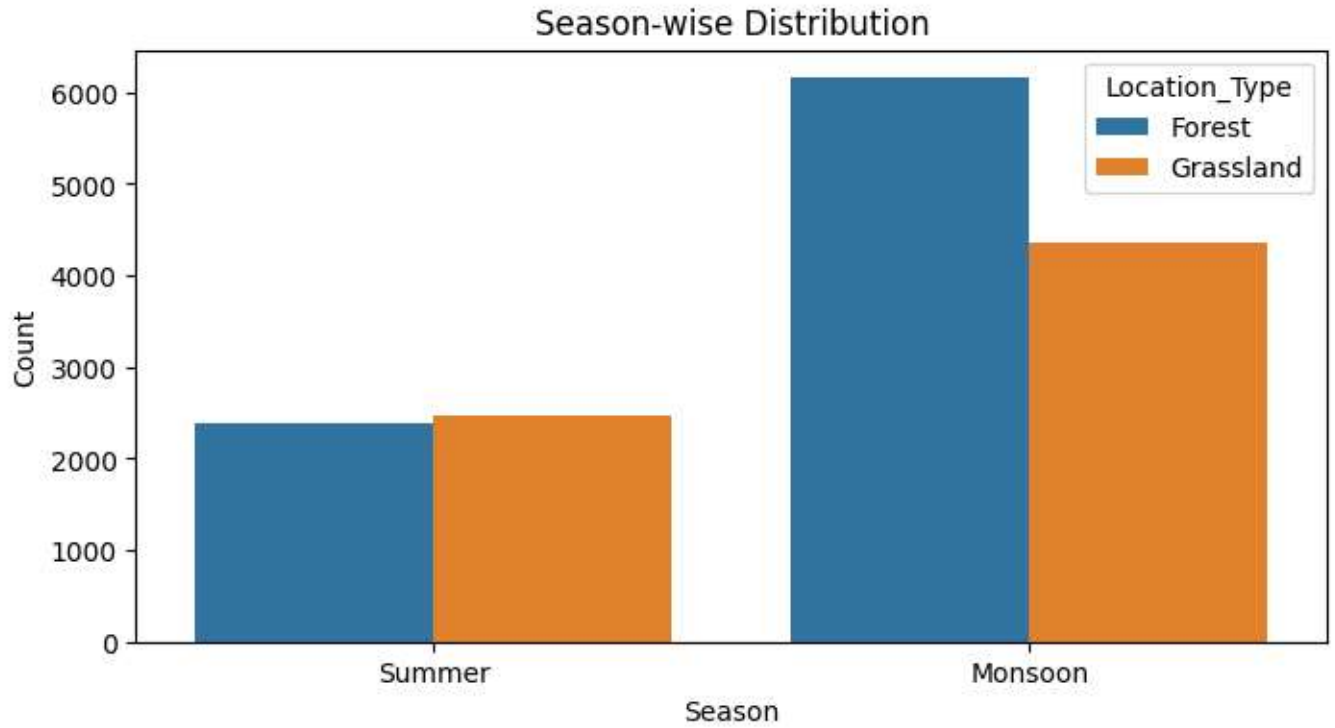
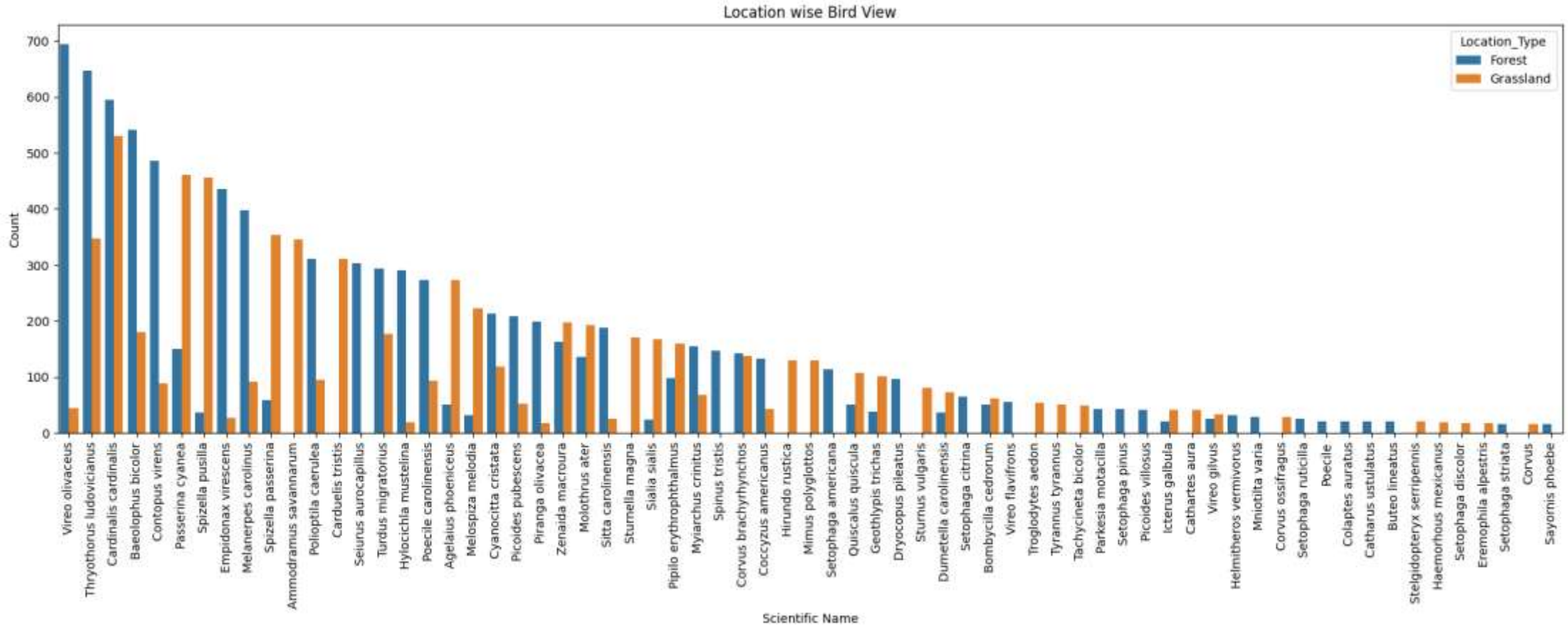
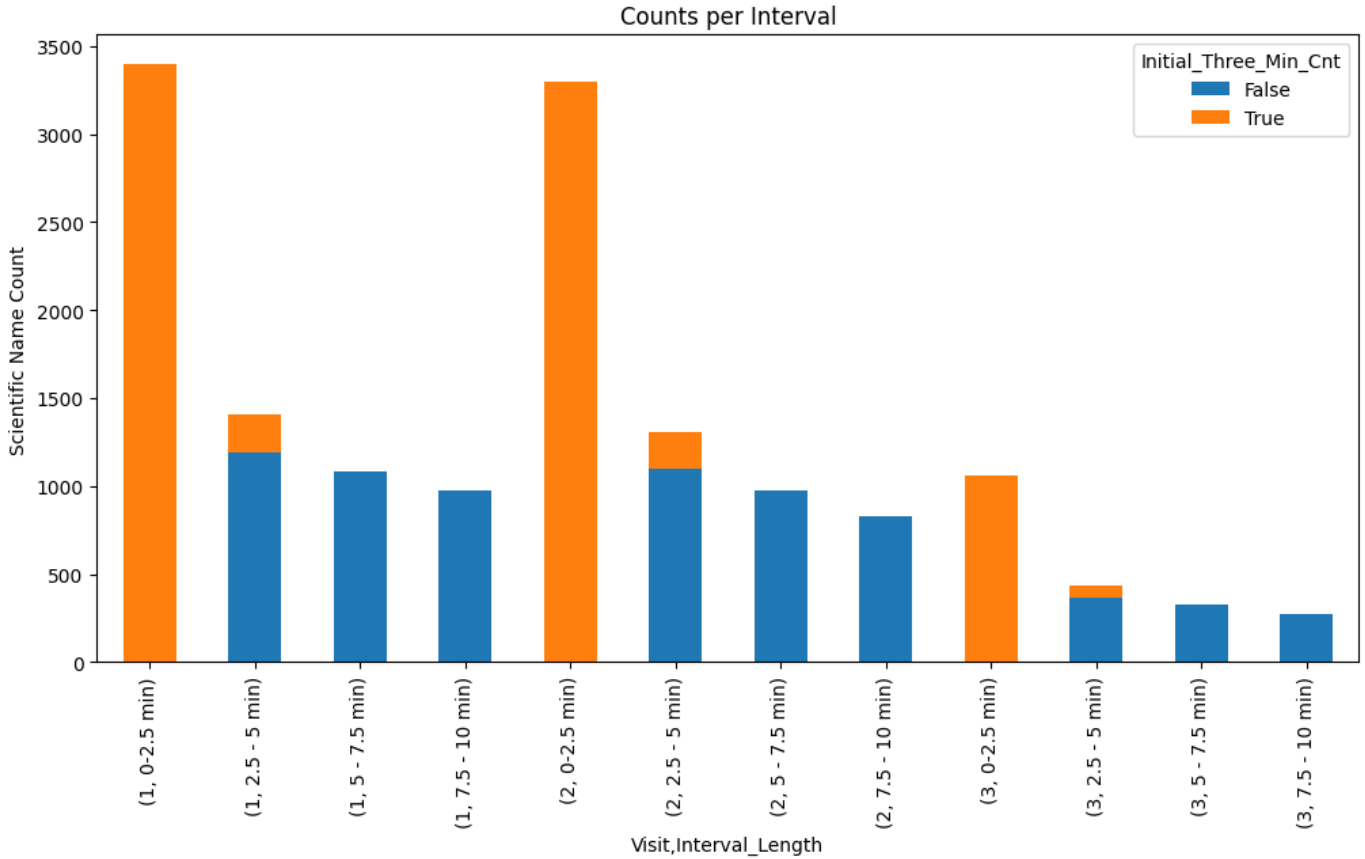
Bird Species Observation Analysis

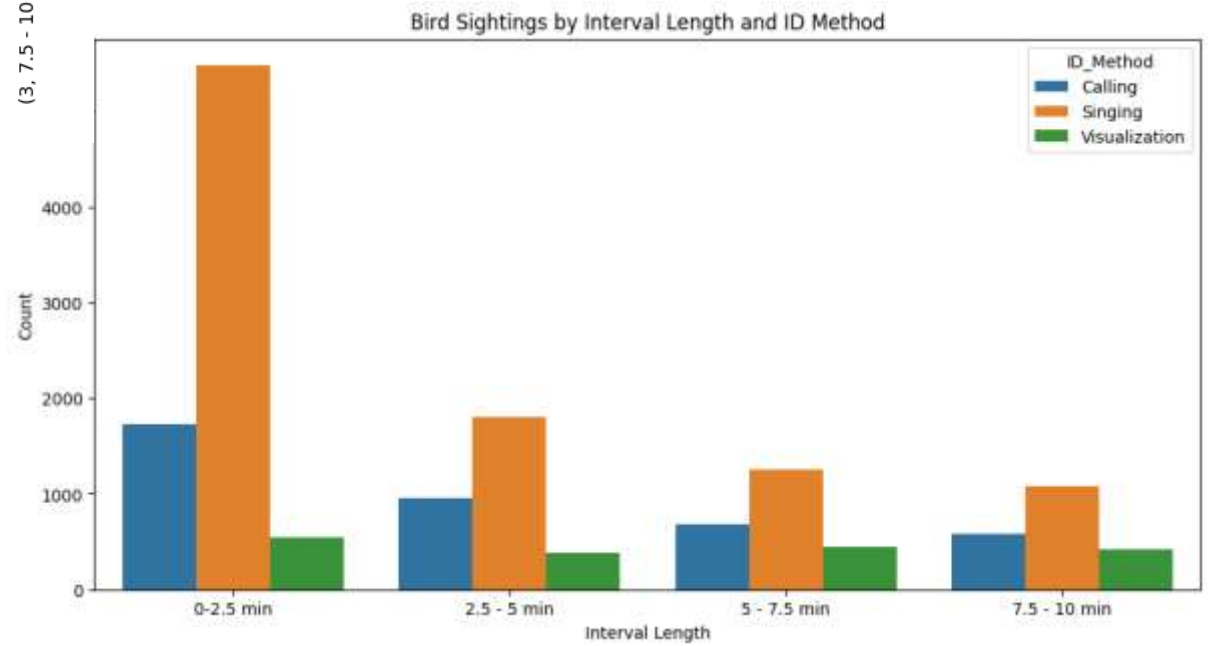
- **Peak Bird Activity Hours**
  Bird activity shows noticeable peaks during certain time windows (for example, early morning and late afternoon). This means birdwatching tours, photography sessions, and research observations can be planned at these times to get maximum results.
- **Location Hotspots**
  A small set of locations record the majority of sightings, making them prime spots for tourism, conservation projects, and targeted monitoring efforts.
- **Species-Specific Locations**
  Some bird species appear predominantly in certain areas. This can guide eco-tour operators or wildlife photographers to promote “species-specific” packages.
- **Weather Impact on Activity**
  Temperature and humidity influence bird sightings. Planning events or field studies during favorable weather conditions can improve success rates.
- **Seasonal Trends**
  Different species are more visible in different seasons, creating opportunities for seasonal tourism marketing and migration studies.
- **Rare Species Alerts**
  Species with low occurrence rates might be rare or endangered, signaling a need for conservation action and creating awareness campaigns.

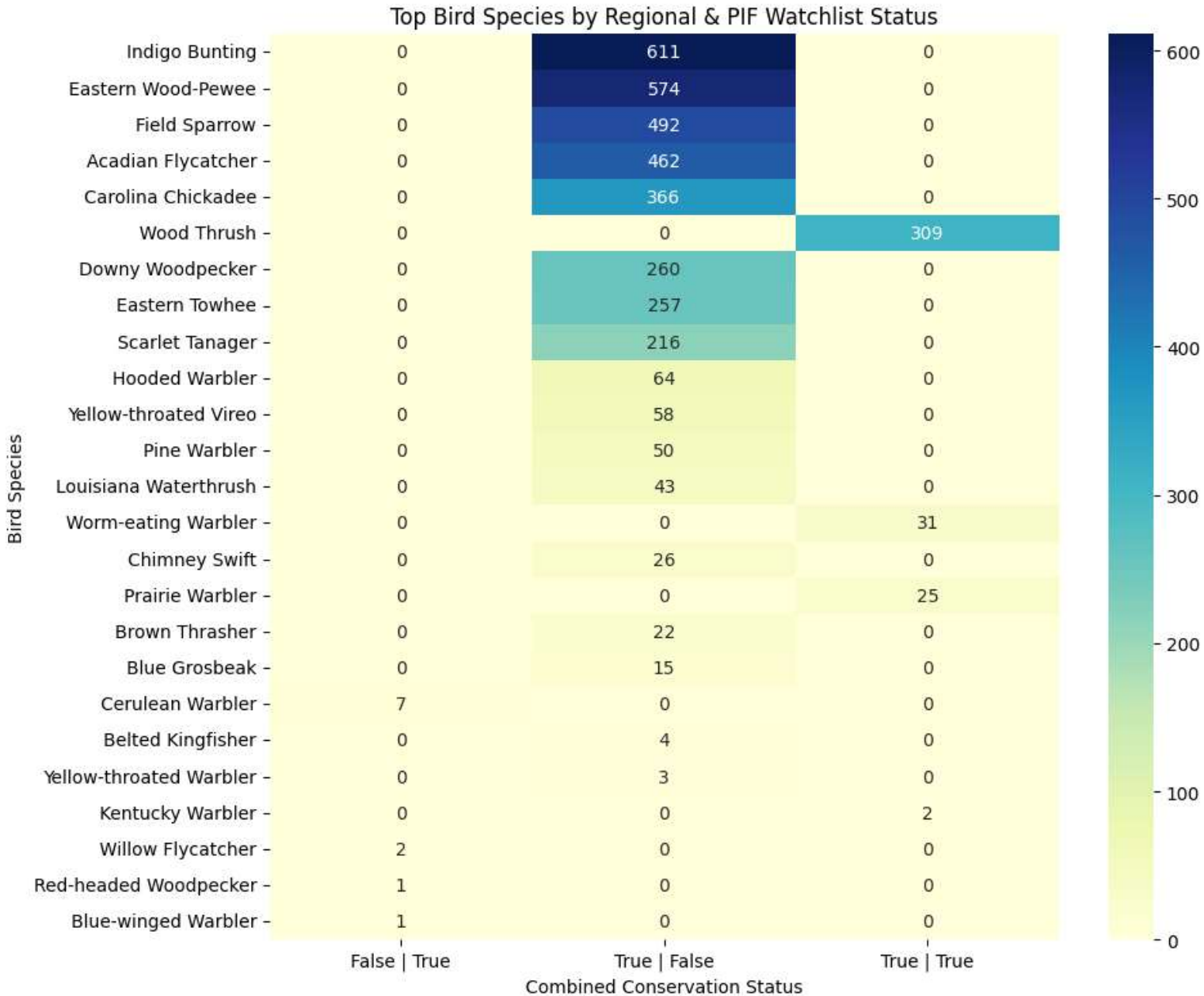

Pie chart of Location wise Habitat
Forest
55.6%
44.4%
Grassland

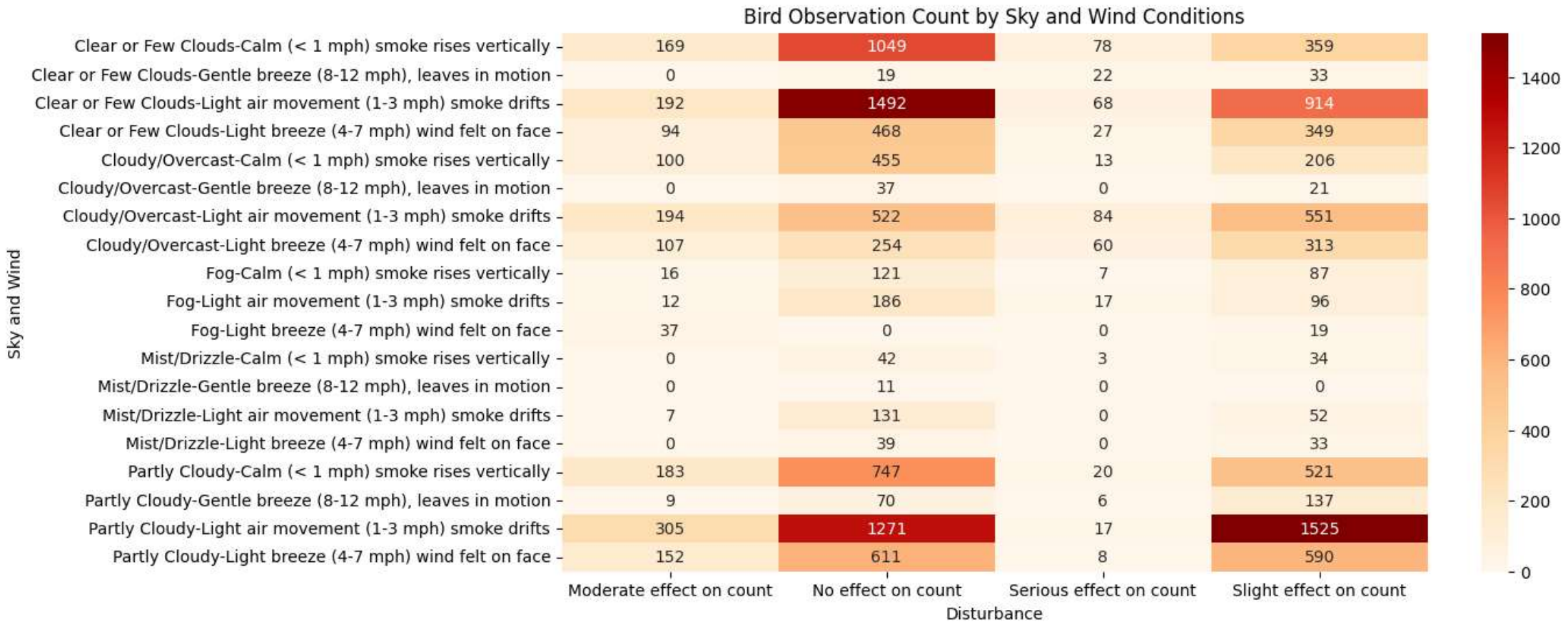

Season-wise Distribution
Location_Type
Forest
Grassland
Count
6000
5000
4000
3000
2000
1000
0
Summer
Monsoon
Season

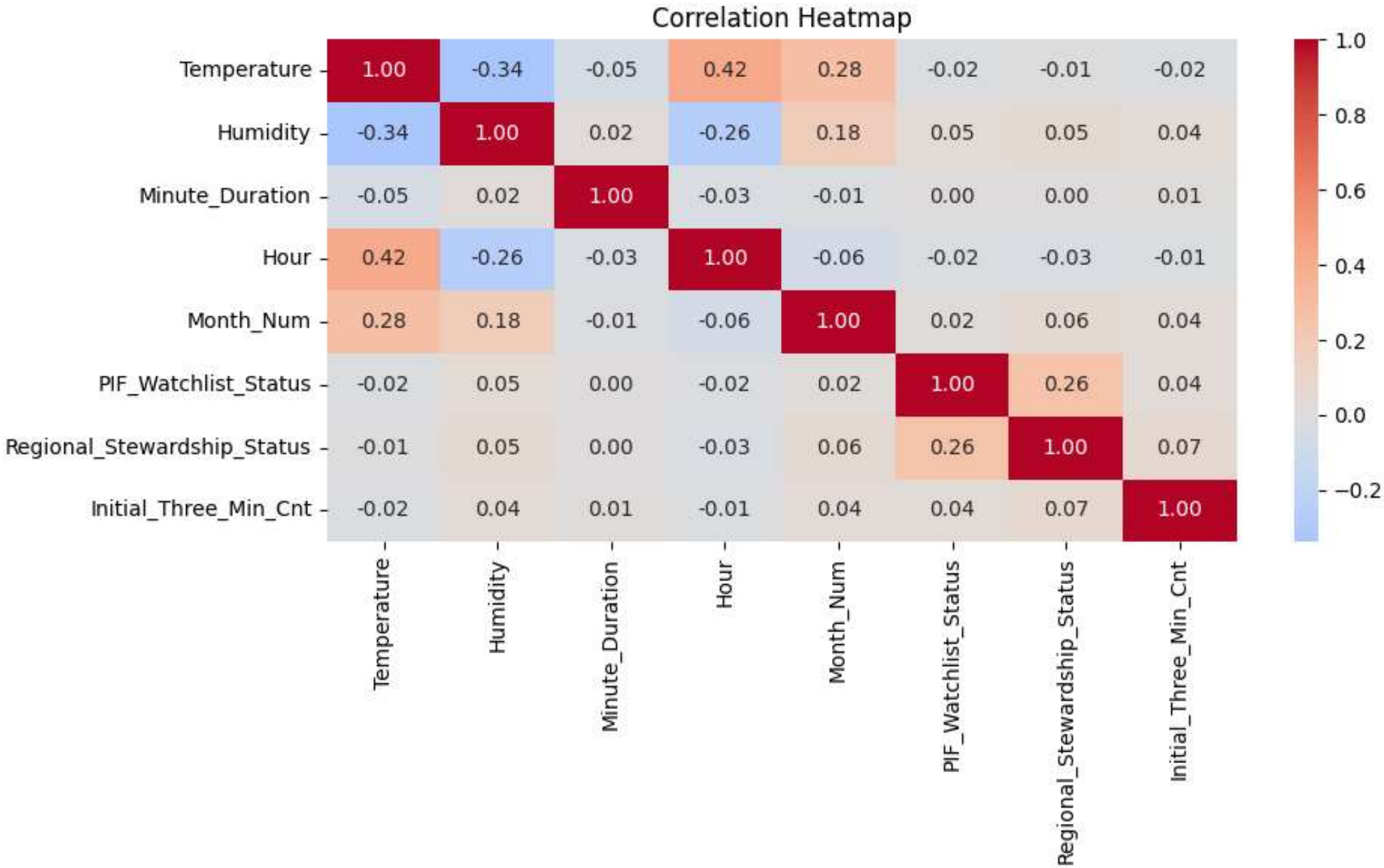

Location wise Bird View
Location_Type
Forest
Grassland
Count
Scientific Name
0
100
200
300
400
500
600
700
Vireo olivaceus
Thryothorus ludovicianus
Cardinalis cardinalis
Baeolophus bicolor
Contopus virens
Passerina cyanea
Spizella pusilla
Empidonax virescens
Melanerpes carolinus
Spizella passerina
Ammodramus savannarum
Polioptila caerulea
Carduelis tristis
Seiurus aurocapillus
Turdus migratorius
Hylocichla mustelina
Poecile carolinensis
Agelaius phoeniceus
Melospiza melodia
Cyanocitta cristata
Picoides pubescens
Piranga olivacea
Zenaida macroura
Molothrus ater
Sitta carolinensis
Sturnella magna
Sialia sialis
Pipilo erythrophthalmus
Myiarchus crinitus
Spinus tristis
Corvus brachyrhynchos
Coccyzus americanus
Hirundo rustica
Mimus polyglottos
Setophaga americana
Quiscalus quiscula
Geothlypis trichas
Dryocopus pileatus
Sturnus vulgaris
Dumetella carolinensis
Setophaga citrina
Bombycilla cedrorum
Vireo flavifrons
Troglodytes aedon
Tyrannus tyrannus
Tachycineta bicolor
Parkesia motacilla
Setophaga pinus
Picoides villosus
Icterus galbula
Cathartes aura
Vireo gilvus
Helmitheros vermivorus
Mniotilta varia
Corvus ossifragus
Setophaga ruticilla
Poecile
Colaptes auratus
Catharus ustulatus
Buteo lineatus
Stelgidopteryx serripennis
Haemorhous mexicanus
Setophaga discolor
Eremophila alpestris
Setophaga striata
Corvus
Sayornis phoebe

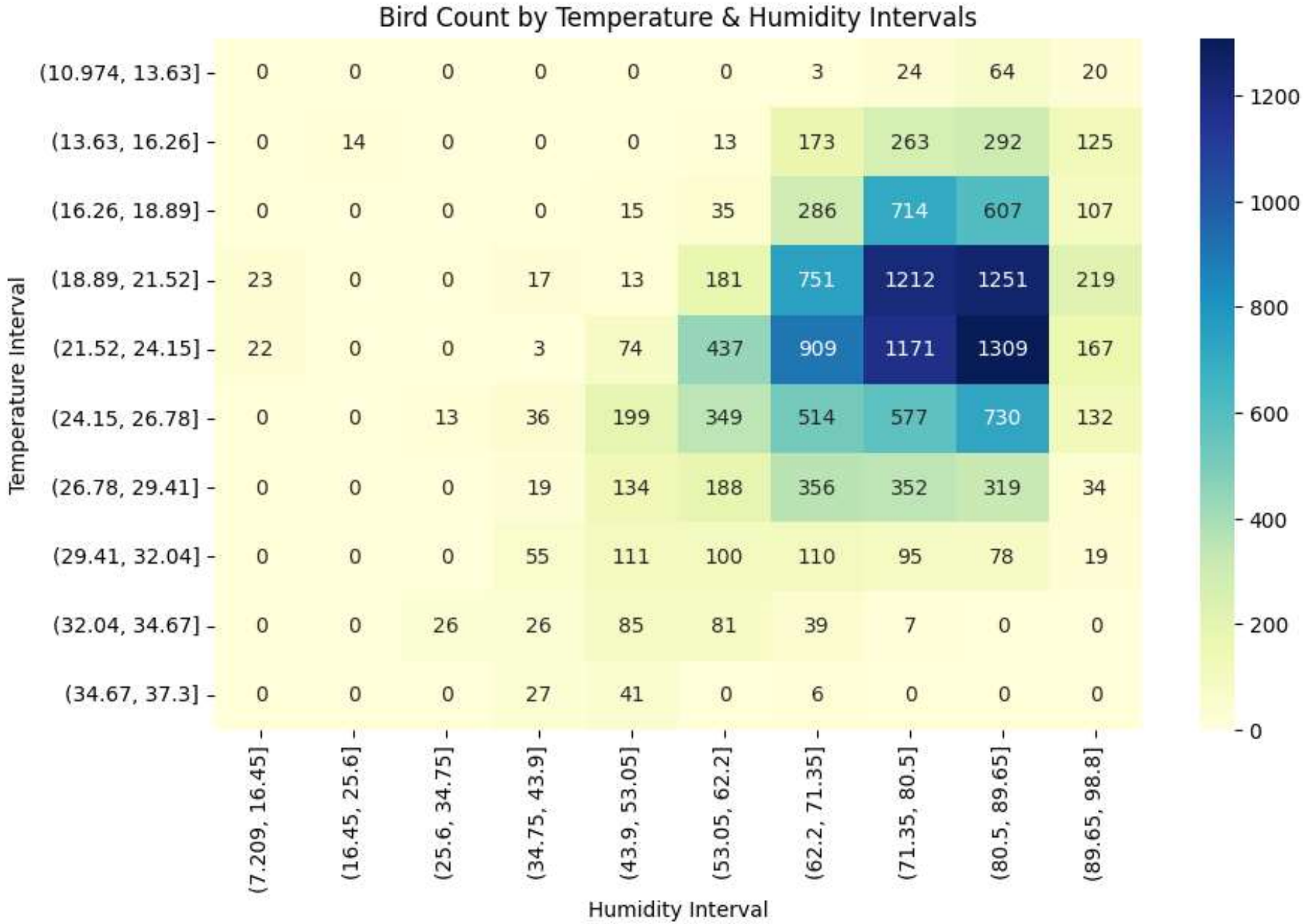

Counts per Interval
Initial_Three_Min_Cnt
False
True
Scientific Name Count
0
500
1000
1500
2000
2500
3000
3500
(1, 0-2.5 min)
(1, 2.5 - 5 min)
(1, 5 - 7.5 min)
(1, 7.5 - 10 min)
(2, 0-2.5 min)
(2, 2.5 - 5 min)
(2, 5 - 7.5 min)
(2, 7.5 - 10 min)
(3, 0-2.5 min)
(3, 2.5 - 5 min)
(3, 5 - 7.5 min)
(3, 7.5 - 10 min)
Visit,Interval_Length

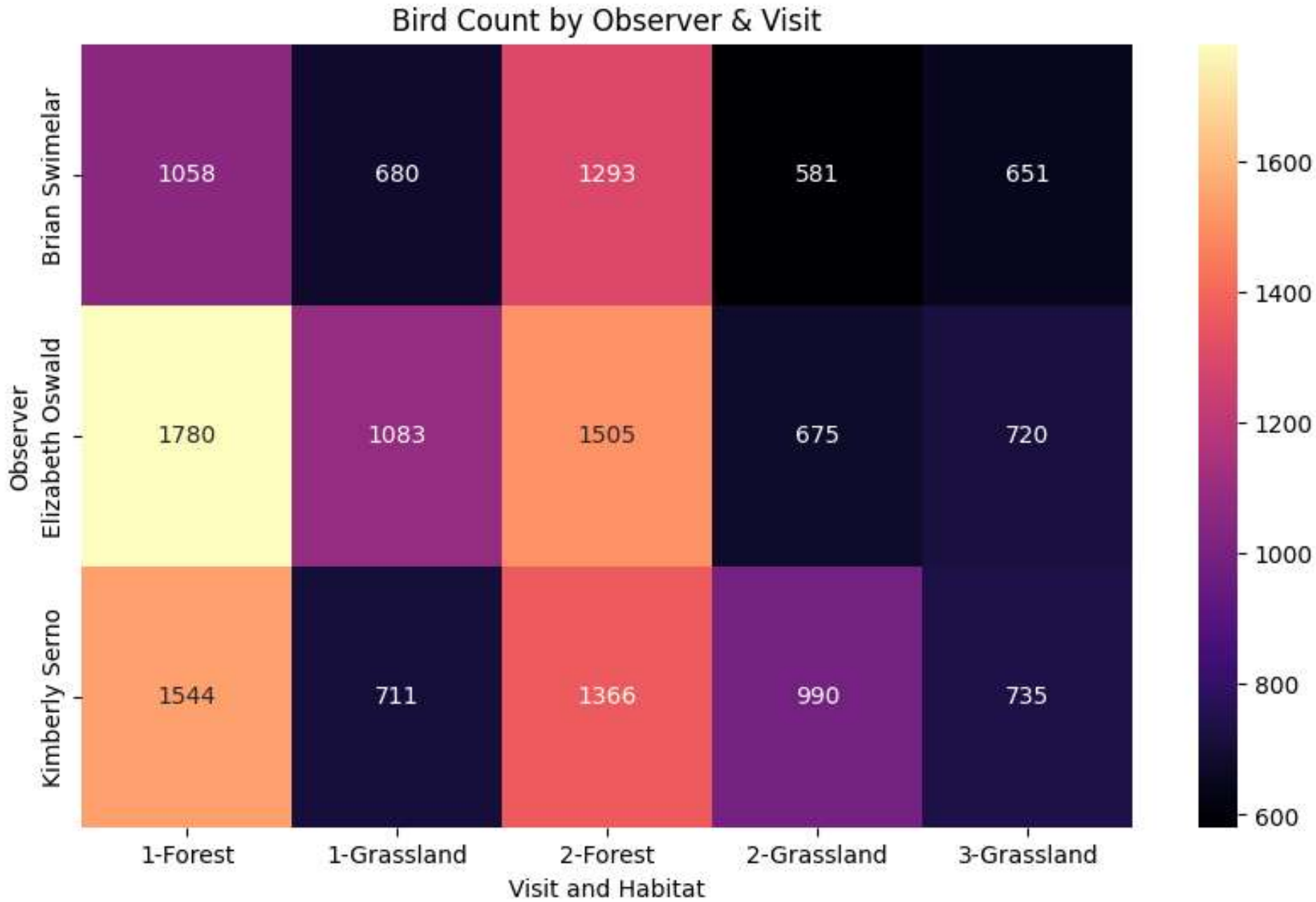

Bird Sightings by Interval Length and ID Method
ID_Method
Calling
Singing
Visualization
Count
0
1000
2000
3000
4000
0-2.5 min
2.5 - 5 min
5 - 7.5 min
7.5 - 10 min
Interval Length

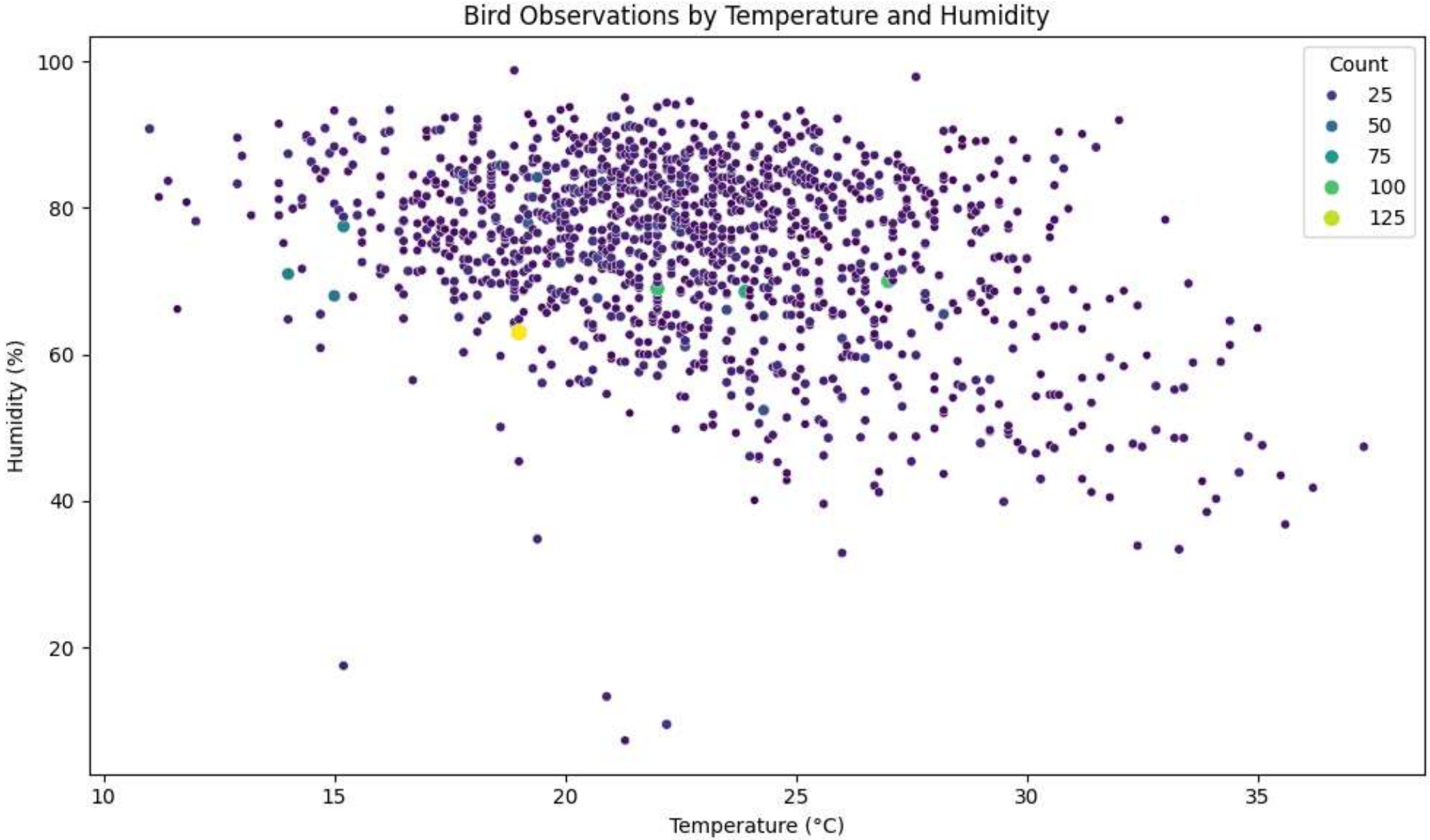

Top Bird Species by Regional & PIF Watchlist Status
Indigo Bunting 0 611 0
Eastern Wood-Pewee 0 574 0
Field Sparrow 0 492 0
Acadian Flycatcher 0 462 0
Carolina Chickadee 0 366 0
Wood Thrush 0 0 309
Downy Woodpecker 0 260 0
Eastern Towhee 0 257 0
Scarlet Tanager 0 216 0
Hooded Warbler 0 64 0
Yellow-throated Vireo 0 58 0
Pine Warbler 0 50 0
Louisiana Waterthrush 0 43 0
Worm-eating Warbler 0 0 31
Chimney Swift 0 26 0
Prairie Warbler 0 0 25
Brown Thrasher 0 22 0
Blue Grosbeak 0 15 0
Cerulean Warbler 7 0 0
Belted Kingfisher 0 4 0
Yellow-throated Warbler 0 3 0
Kentucky Warbler 0 0 2
Willow Flycatcher 2 0 0
Red-headed Woodpecker 1 0 0
Blue-winged Warbler 1 0 0
Bird Species
False | True
True | False
True | True
Combined Conservation Status
600
500
400
300
200
100
0


Bird Observation Count by Sky and Wind Conditions
Sky and Wind
Clear or Few Clouds-Calm (< 1 mph) smoke rises vertically
Clear or Few Clouds-Gentle breeze (8-12 mph), leaves in motion
Clear or Few Clouds-Light air movement (1-3 mph) smoke drifts
Clear or Few Clouds-Light breeze (4-7 mph) wind felt on face
Cloudy/Overcast-Calm (< 1 mph) smoke rises vertically
Cloudy/Overcast-Gentle breeze (8-12 mph), leaves in motion
Cloudy/Overcast-Light air movement (1-3 mph) smoke drifts
Cloudy/Overcast-Light breeze (4-7 mph) wind felt on face
Fog-Calm (< 1 mph) smoke rises vertically
Fog-Light air movement (1-3 mph) smoke drifts
Fog-Light breeze (4-7 mph) wind felt on face
Mist/Drizzle-Calm (< 1 mph) smoke rises vertically
Mist/Drizzle-Gentle breeze (8-12 mph), leaves in motion
Mist/Drizzle-Light air movement (1-3 mph) smoke drifts
Mist/Drizzle-Light breeze (4-7 mph) wind felt on face
Partly Cloudy-Calm (< 1 mph) smoke rises vertically
Partly Cloudy-Gentle breeze (8-12 mph), leaves in motion
Partly Cloudy-Light air movement (1-3 mph) smoke drifts
Partly Cloudy-Light breeze (4-7 mph) wind felt on face
169 1049 78 359
0 19 22 33
192 1492 68 914
94 468 27 349
100 455 13 206
0 37 0 21
194 522 84 551
107 254 60 313
16 121 7 87
12 186 17 96
37 0 0 19
0 42 3 34
0 11 0 0
7 131 0 52
0 39 0 33
183 747 20 521
9 70 6 137
305 1271 17 1525
152 611 8 590
Moderate effect on count
No effect on count
Serious effect on count
Slight effect on count
Disturbance
1400
1200
1000
800
600
400
200
0


Correlation Heatmap
Temperature
Humidity
Minute_Duration
Hour
Month_Num
PIF_Watchlist_Status
Regional_Stewardship_Status
Initial_Three_Min_Cnt
1.00 -0.34 -0.05 0.42 0.28 -0.02 -0.01 -0.02
-0.34 1.00 0.02 -0.26 0.18 0.05 0.05 0.04
-0.05 0.02 1.00 -0.03 -0.01 0.00 0.00 0.01
0.42 -0.26 -0.03 1.00 -0.06 -0.02 -0.03 -0.01
0.28 0.18 -0.01 -0.06 1.00 0.02 0.06 0.04
-0.02 0.05 0.00 -0.02 0.02 1.00 0.26 0.04
-0.01 0.05 0.00 -0.03 0.06 0.26 1.00 0.07
-0.02 0.04 0.01 -0.01 0.04 0.04 0.07 1.00
1.0
0.8
0.6
0.4
0.2
0.0
−0.2


Bird Count by Temperature & Humidity Intervals
Temperature Interval
(10.974, 13.63] 0 0 0 0 0 0 3 24 64 20
(13.63, 16.26] 0 14 0 0 0 13 173 263 292 125
(16.26, 18.89] 0 0 0 0 15 35 286 714 607 107
(18.89, 21.52] 23 0 0 17 13 181 751 1212 1251 219
(21.52, 24.15] 22 0 0 3 74 437 909 1171 1309 167
(24.15, 26.78] 0 0 13 36 199 349 514 577 730 132
(26.78, 29.41] 0 0 0 19 134 188 356 352 319 34
(29.41, 32.04] 0 0 0 55 111 100 110 95 78 19
(32.04, 34.67] 0 0 26 26 85 81 39 7 0 0
(34.67, 37.3] 0 0 0 27 41 0 6 0 0 0
(7.209, 16.45]
(16.45, 25.6]
(25.6, 34.75]
(34.75, 43.9]
(43.9, 53.05]
(53.05, 62.2]
(62.2, 71.35]
(71.35, 80.5]
(80.5, 89.65]
(89.65, 98.8]
Humidity Interval
1200
1000
800
600
400
200
0


Bird Count by Observer & Visit
Observer
Brian Swimelar
Elizabeth Oswald
Kimberly Serno
1058
680
1293
581
651
1780
1083
1505
675
720
1544
711
1366
990
735
1-Forest
1-Grassland
2-Forest
2-Grassland
3-Grassland
Visit and Habitat
1600
1400
1200
1000
800
600


Bird Observations by Temperature and Humidity
Humidity (%)
Temperature (°C)
Count
25
50
75
100
125
100
80
60
40
20
10
15
20
25
30
35

Conclusion

- Peak activity periods identified – Early morning and late afternoon are the best times for bird observation and related tourism or research efforts.
- Key biodiversity zones – Specific areas contribute the majority of sightings, making them priority locations for conservation and eco-tourism investment.
- Weather-sensitive patterns – Optimal bird activity occurs under mild temperature and moderate humidity, helping plan fieldwork schedules.
- Location-specific species – Many species are tied to unique habitats, requiring targeted protection strategies.
- Seasonal migration evidence – Clear seasonal shifts in species presence indicate migration patterns that can guide habitat connectivity projects.
- At-risk or rare species – Low frequency sightings highlight species that may need urgent monitoring and conservation support.