

## 6 ANEXOS

### 1. Scripts utilizados no ambiente R - Modelos

```
install.packages('devtools')
library('devtools')
install_github("andrefaa/ENMTML",force=T)
library(ENMTML)

#Espécies terrestres com mais de 30 pontos
ENMTML(pred_dir = "C:/Workspace_Doutorado/Modelagem_Nepomorpha/Camadas",
       occ_file="C:/Workspace_Doutorado/Modelagem_Nepomorpha/nepo.txt",
       result_dir="C:/Users/rjord/OneDrive/Área de Trabalho/resultados/nepo_20registros/JAC",
       proj_dir= NULL,
       sp="Spp",
       x="Long",
       y="Lat",
       min_occ=20,
       thin_occ= NULL,
       colin_var = c(method='PCA'),
       imp_var = FALSE,
       eval_occ = NULL,
       sp_accessible_area = c(method='BUFFER', type='2', width='300'),
       pres_abs_ratio = 1,
       pseudoabs_method = c(method='RND'),
       part = c(method= 'BLOCK'),
       save_part=FALSE,save_final=TRUE,
       algorithm = c("SVM","MXD","RDF", "GAU"),
       thr=c(type='JACCARD'),
       msdm=NULL,
       ensemble = c(method='W_MEAN', metric='Jaccard'),
       extrapolation=FALSE,
       cores=8)

#Espécies terrestres com mais de 4 pontos
ENMTML(pred_dir = "C:/Workspace_Doutorado/Modelagem_Nepomorpha/Camadas",
       occ_file= "C:/Workspace_Doutorado/Modelagem_Nepomorpha/nepo.txt",
       result_dir="C:/Users/rjord/OneDrive/Área de Trabalho/resultados/nepo_4registros",
       proj_dir=NULL,
       sp="Spp",
       x="Long",
```

```

y="Lat",
min_occ=4,
thin_occ=NULL,
colin_var = c(method='PCA'),
imp_var = FALSE,
eval_occ = NULL,
sp_accessible_area = c(method='BUFFER', type='2', width='300'),
pres_abs_ratio = 1,
pseudoabs_method = c(method='RND'),
part = c(method='BOOT', replicates='10', proportion='0.7'),
save_part=FALSE,save_final=TRUE,
algorithm = c("MXD","RDF","SVM","GAU"),
thr=c(type='JACCARD'),
msdm= NULL,
ensemble = c(method='W_MEAN', metric='Jaccard'),
extrapolation=FALSE,
cores=8)

```

## 2. Análise da Contribuição de Cada Unidade de Conservação e Teste de Monte Carlo

```

library(vegan)
getwd()
data<-read.table("analises_CAP_V_PERMANOVA_PERMADISP/zonation.txt",head=T,sep="\t")
summary(data)
imp.dist<-vegdist(data$MEDIA,"euclidian")
permanova.imp.tipos<-adonis2(imp.dist~data$Protecao)
permanova.imp.tipos
permdisp.imp.tipos<-betadisper(imp.dist,data$Protecao)
anova(permdisp.imp.tipos)
plot(permdisp.imp.tipos)
permanova.imp.categorias<-adonis2(imp.dist~data$CATEGORIA)
permanova.imp.categorias
permdisp.imp.categorias<-betadisper(imp.dist,data$CATEGORIA)
anova(permdisp.imp.categorias)
plot(permdisp.imp.categorias)
grupos<-c("Protecao","CATEGORIA")
n<-dim(data)[1]
replicas<-99999
for (t in 1:length(grupos)){
g<-levels(as.factor(data[,which(colnames(data)==grupos[t])]))
res<-matrix(NA,length(g),3)
colnames(res)<-c("Observado","Aleatorizado","p")

```

```

rownames(res)<-g
for (i in 1:length(g)) {
  l<-which(data[,which(colnames(data)==grupos[t])]==g[i])
  ng<-length(l)
  res[i,1]<-mean(data$MEDIA[l])
  aleat<-mean(data$MEDIA[sample(n,ng)])
for (j in 1:replicas){
  aleat<-c(aleat,mean(data$MEDIA[sample(n,ng)]))
  print(c(((t/length(grupos))*100),((i/length(g))*100),(j/replicas)*100))
}

res[i,2]<-mean(aleat)
res[i,3]<-length(which(aleat>res[i,1]))/replicas

}

write.table(res,paste(grupos[t],".txt",sep=""))
}

```

## Tabelas

**Tabela 6.1.** Valores dos modelos para espécies com no mínimo quatro registros, média ponderada dos algoritmos (WMEA). AUC: Area Under the Curve; AUC\_SD: Desvio padrão da métrica AUC; TSS: True Skilled Statistics; TSS\_SD: Desvio padrão da métrica TSS; JAC: Índice de Jaccard; TSS\_SD: Desvio padrão da métrica JAC.

| Espécie                          | Algoritmo | AUC        | AUC_SD     | TSS        | TSS_SD     | JAC        | JAC_SD     |
|----------------------------------|-----------|------------|------------|------------|------------|------------|------------|
| <i>Buenoa amnigenus</i>          | WMEA      | 0.82188366 | 0.04020705 | 0.59473684 | 0.07865443 | 0.67181131 | 0.04929537 |
| <i>Belostoma anurum</i>          | WMEA      | 0.48977778 | 0.06538018 | 0.03333333 | 0.0846197  | 0.50589081 | 0.01368844 |
| <i>Be. dallasi</i>               | WMEA      | 0.21111111 | 0.16932044 | 0.03333333 | 0.10540926 | 0.51       | 0.03162278 |
| <i>Bu. femoralis</i>             | WMEA      | 0.7        | 0.28382312 | 0.6        | 0.39440532 | 0.76666667 | 0.21081851 |
| <i>Be. foveolatum</i>            | WMEA      | 0.34       | 0.11035297 | 0.02       | 0.06324555 | 0.50555556 | 0.01756821 |
| <i>Bu. fuscipennis</i>           | WMEA      | 0.97777778 | 0.07027284 | 0.96666667 | 0.10540926 | 0.96666667 | 0.10540926 |
| <i>Bu. konta</i>                 | WMEA      | 0.66122449 | 0.12327762 | 0.35714286 | 0.31765867 | 0.61111111 | 0.11415582 |
| <i>Bu. micantulum</i>            | WMEA      | 0.60836763 | 0.05756688 | 0.16666667 | 0.14317795 | 0.52359524 | 0.01552475 |
| <i>Bu. mutabilis</i>             | WMEA      | 0.56666667 | 0.16932044 | 0.36666667 | 0.29186501 | 0.59666667 | 0.07277566 |
| <i>Bu. pallipes</i>              | WMEA      | 0.3        | 0.48304589 | 0.3        | 0.48304589 | 0.65       | 0.24152295 |
| <i>Bu. platycnemis</i>           | WMEA      | 0.712      | 0.09942054 | 0.4        | 0.24944383 | 0.61380952 | 0.08553995 |
| <i>Be. plebejum</i>              | WMEA      | 0.64583333 | 0.07209450 | 0.3        | 0.11249143 | 0.57481581 | 0.04052263 |
| <i>Bu. pseudomutabilis</i>       | WMEA      | 0.775      | 0.14191155 | 0.55       | 0.28382311 | 0.71666667 | 0.15811388 |
| <i>Bu. salutis</i>               | WMEA      | 0.69194215 | 0.07748745 | 0.35454546 | 0.15121182 | 0.56249974 | 0.04669966 |
| <i>Bu. tarsalis</i>              | WMEA      | 0.78752835 | 0.03724547 | 0.53333333 | 0.07027284 | 0.65710598 | 0.03955197 |
| <i>Bu. unguis</i>                | WMEA      | 0.6234375  | 0.06526543 | 0.2375     | 0.17873009 | 0.54710859 | 0.03220759 |
| <i>Centrocorisa kollari</i>      | WMEA      | 0.63333333 | 0.18921540 | 0.4        | 0.34426519 | 0.64666667 | 0.15551587 |
| <i>Enitharoides brasiliensis</i> | WMEA      | 0.8484375  | 0.04998372 | 0.6125     | 0.09223310 | 0.69747475 | 0.05948314 |
| <i>Gelastocoris angulatus</i>    | WMEA      | 0.375      | 0.27003086 | 0.2        | 0.25819889 | 0.56666667 | 0.08606630 |
| <i>G. f. flavus</i>              | WMEA      | 0.67295918 | 0.05455182 | 0.32142857 | 0.09066397 | 0.57881995 | 0.04075726 |

|                                   |      |            |            |             |             |            |            |
|-----------------------------------|------|------------|------------|-------------|-------------|------------|------------|
| <i>Heterocorixa w. ollalai</i>    | WMEA | 0.6        | 0.51639778 | 0.6         | 0.51639778  | 0.8        | 0.25819889 |
| <i>H. w. wrighti</i>              | WMEA | 0.53333333 | 0.17213259 | 0.26666667  | 0.30631219  | 0.595      | 0.11413929 |
| <i>Lethocerus annulipes</i>       | WMEA | 0.623      | 0.08781926 | 0.25        | 0.17159384  | 0.56082486 | 0.04864168 |
| <i>Limnocoris pusillus</i>        | WMEA | 0.834      | 0.05481281 | 0.6         | 0.06666667  | 0.69214119 | 0.04617613 |
| <i>Martarega bentoi</i>           | WMEA | 0.82888889 | 0.07270588 | 0.66        | 0.19739038  | 0.70143519 | 0.09449447 |
| <i>M. brasiliensis</i>            | WMEA | 0.61836735 | 0.1319272  | 0.3         | 0.24697719  | 0.58914918 | 0.07681042 |
| <i>M. membranacea</i>             | WMEA | 0.70793951 | 0.05226007 | 0.30434783  | 0.15200128  | 0.55202269 | 0.02558226 |
| <i>Maculambrysus stali</i>        | WMEA | 0.768      | 0.12959767 | 0.47        | 0.25841397  | 0.64328666 | 0.10988443 |
| <i>Notonecta disturbata</i>       | WMEA | 0.74       | 0.18595101 | 0.54        | 0.25033311  | 0.68702381 | 0.09815547 |
| <i>Neoplea maculosa</i>           | WMEA | 0.72222222 | 0.08177556 | 0.43333333  | 0.1956313   | 0.61561688 | 0.09153582 |
| <i>Nerthra raptoria</i>           | WMEA | 0.46666667 | 0.10210407 | 0.2         | 0.23306863  | 0.55666667 | 0.06295207 |
| <i>Neo semipicta</i>              | WMEA | 0.764      | 0.06380526 | 0.68        | 0.10327956  | 0.74285714 | 0.07999748 |
| <i>P. magister</i>                | WMEA | 0.51111111 | 0.19029974 | 0.36666667  | 0.33147631  | 0.59333333 | 0.08285045 |
| <i>P. binotulatus nigrifolius</i> | WMEA | 0.85       | 0.05270463 | 0.65        | 0.11486707  | 0.72363636 | 0.07192978 |
| <i>P. politus</i>                 | WMEA | 0.9        | 0.31622777 | 0.9         | 0.31622777  | 0.95       | 0.15811388 |
| <i>Ranatra annulipes</i>          | WMEA | 0.54444444 | 0.12227833 | 0.33333333  | 0.15713484  | 0.605      | 0.05986095 |
| <i>R. costalimai</i>              | WMEA | 0.56       | 0.06253888 | 0.38        | 0.06324555  | 0.61269841 | 0.0262025  |
| <i>R. magna</i>                   | WMEA | 0.52222222 | 0.12883353 | 0.23333333  | 0.1610153   | 0.57       | 0.04830459 |
| <i>Sigara denseconscripta</i>     | WMEA | 0.325      | 0.44174527 | 0.25        | 0.42491829  | 0.61666667 | 0.20861093 |
| <i>S. denseconscriptoidea</i>     | WMEA | 0.35       | 0.17480148 | 0.2         | 0.25819889  | 0.56666667 | 0.0860663  |
| <i>Tenagobia incerta</i>          | WMEA | 0.70176899 | 0.06918845 | 0.267741935 | 0.145896188 | 0.56419380 | 0.04013453 |

**Tabela 6.2.** Valores dos modelos para espécies com no mínimo quatro registros, algoritmo de modelo Gaussiano. (GAU). AUC: Area Under the Curve; AUC\_SD: Desvio padrão da métrica AUC; TSS: True Skilled Statistics; TSS\_SD: Desvio padrão da métrica TSS; JAC: Índice de Jaccard; TSS\_SD: Desvio padrão da métrica JAC.

| Espécie                 | Algoritmo | AUC         | AUC_SD      | TSS         | TSS_SD      | JAC         | JAC_SD      |
|-------------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Buenoa amnigenus</i> | GAU       | 0.712465374 | 0.047133036 | 0.457894737 | 0.0499307   | 0.603347578 | 0.039784797 |
| <i>Belostoma anurum</i> | GAU       | 0.489333333 | 0.075554103 | 0.073333333 | 0.049190986 | 0.519334975 | 0.01322642  |
| <i>Be. dallasi</i>      | GAU       | 0.133333333 | 0.102104065 | 0           | 0           | 0.5         | 0           |
| <i>Bu. femoralis</i>    | GAU       | 0.65        | 0.174801475 | 0.3         | 0.349602949 | 0.616666667 | 0.158113883 |
| <i>Be. foveolatum</i>   | GAU       | 0.38        | 0.134989712 | 0.04        | 0.084327404 | 0.511111111 | 0.023424279 |
| <i>Bu. fuscipennis</i>  | GAU       | 0.977777777 | 0.070272837 | 0.966666666 | 0.105409255 | 0.966666666 | 0.105409255 |
| <i>Bu. konta</i>        | GAU       | 0.6         | 0.072121678 | 0.342857143 | 0.16768397  | 0.574048174 | 0.054724603 |
| <i>Be. micantulum</i>   | GAU       | 0.635939643 | 0.046921691 | 0.211111111 | 0.109103956 | 0.535638464 | 0.026705801 |
| <i>Bu. mutabilis</i>    | GAU       | 0.488888888 | 0.197376483 | 0.4         | 0.306312194 | 0.611666666 | 0.087506614 |
| <i>Bu. pallipes</i>     | GAU       | 0.3         | 0.483045892 | 0.3         | 0.483045892 | 0.65        | 0.241522946 |

|                                  |     |                 |                 |                 |                 |                 |                 |
|----------------------------------|-----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <i>Bu. platycnemis</i>           | GAU | 0.592           | 0.09942054<br>3 | 0.26            | 0.26749870<br>2 | 0.56158730<br>2 | 0.06574401<br>4 |
| <i>Be. plebejum</i>              | GAU | 0.63472222<br>2 | 0.07762054<br>2 | 0.275           | 0.16689798<br>8 | 0.56772499<br>4 | 0.04665202      |
| <i>Bu. pseudomutabilis</i>       | GAU | 1               | 0               | 1               | 0               | 1               | 0               |
| <i>Bu. salutis</i>               | GAU | 0.66611570<br>2 | 0.07645062<br>4 | 0.35            | 0.18188130<br>2 | 0.57366107<br>8 | 0.04879991<br>4 |
| <i>Bu. tarsalis</i>              | GAU | 0.77913832<br>2 | 0.04257298<br>7 | 0.48571428<br>6 | 0.04918074<br>1 | 0.63984765<br>8 | 0.02655418<br>5 |
| <i>Bu. unguis</i>                | GAU | 0.58671875      | 0.06478567<br>9 | 0.1375          | 0.16351180<br>7 | 0.52394606<br>4 | 0.02950237<br>1 |
| <i>Centrocorisa kollari</i>      | GAU | 0.24444444<br>4 | 0.17992530<br>1 | 0.1             | 0.16101529<br>7 | 0.53            | 0.04830458<br>9 |
| <i>Enitharoides brasiliensis</i> | GAU | 0.85            | 0.05992979<br>1 | 0.6125          | 0.12430361<br>6 | 0.70828282<br>8 | 0.08098297<br>6 |
| <i>Gelastocoris angulatus</i>    | GAU | 1               | 0               | 1               | 0               | 1               | 0               |
| <i>G. f. flavus</i>              | GAU | 0.63877551      | 0.04681043<br>3 | 0.30714285<br>7 | 0.07566785      | 0.58632836<br>7 | 0.02666296<br>4 |
| <i>Heterocorixa w. ollalai</i>   | GAU | 1               | 0               | 1               | 0               | 1               | 0               |
| <i>H. w. wrighti</i>             | GAU | 0.48888888<br>9 | 0.17529125<br>3 | 0.26666666<br>7 | 0.30631219<br>4 | 0.57            | 0.07769837<br>2 |
| <i>Lethocerus annulipes</i>      | GAU | 0.621           | 0.08736259<br>1 | 0.27            | 0.17029386<br>4 | 0.56463720<br>1 | 0.04865729<br>8 |
| <i>L. pusillus</i>               | GAU | 0.847           | 0.06750308<br>6 | 0.64            | 0.08432740<br>4 | 0.71331168<br>8 | 0.05655945<br>9 |
| <i>Martarega bentoi</i>          | GAU | 0.79555555<br>6 | 0.06101114<br>2 | 0.59333333<br>3 | 0.10634209<br>9 | 0.64898434<br>8 | 0.07161811<br>8 |
| <i>M. brasiliensis</i>           | GAU | 0.48571428<br>6 | 0.13427406<br>6 | 0.07142857<br>1 | 0.15430335      | 0.51388888<br>9 | 0.03000342<br>9 |
| <i>M. membranacea</i>            | GAU | 0.63081285<br>4 | 0.06578069<br>6 | 0.20869565<br>2 | 0.17961661<br>9 | 0.53103031<br>2 | 0.02726040<br>2 |
| <i>Maculambrysus stali</i>       | GAU | 0.645           | 0.12030055      | 0.4             | 0.18257418<br>6 | 0.61085191<br>8 | 0.06958396<br>4 |
| <i>Notonecta disturbata</i>      | GAU | 0.7             | 0.18595100<br>9 | 0.44            | 0.24585451<br>9 | 0.64805555<br>3 | 0.10049645<br>3 |
| <i>Neoplea maculosa</i>          | GAU | 0.79722222<br>2 | 0.09976825      | 0.61666666<br>7 | 0.20861092<br>6 | 0.69462482      | 0.09789825<br>9 |
| <i>Nertha raptoria</i>           | GAU | 0.48888888<br>9 | 0.21081851<br>1 | 0.3             | 0.24595492<br>9 | 0.59166666<br>7 | 0.07905694<br>2 |
| <i>Neo semipicta</i>             | GAU | 0.812           | 0.07554248<br>3 | 0.66            | 0.13498971<br>2 | 0.74523809<br>5 | 0.10042113<br>4 |
| <i>Pelocoris magister</i>        | GAU | 0.61111111<br>1 | 0.14103283<br>5 | 0.43333333<br>3 | 0.27442420<br>1 | 0.61333333<br>3 | 0.06703601<br>4 |
| <i>P. binotulatus nigriculus</i> | GAU | 0.85625         | 0.06862362<br>1 | 0.6375          | 0.13756311<br>7 | 0.72214646<br>5 | 0.09243053<br>2 |
| <i>P. politus</i>                | GAU | 0.5             | 0.52704627<br>7 | 0.5             | 0.52704627<br>7 | 0.75            | 0.26352313<br>8 |
| <i>Ranatra annulipes</i>         | GAU | 0.5             | 0.07856742      | 0.2             | 0.17213259<br>3 | 0.56            | 0.05163977<br>8 |
| <i>R. costalimai</i>             | GAU | 0.604           | 0.11226951<br>7 | 0.36            | 0.12649110<br>6 | 0.60773809<br>5 | 0.04981041<br>4 |
| <i>R. magna</i>                  | GAU | 0.55555555<br>6 | 0.12830006      | 0.26666666<br>7 | 0.30631219<br>4 | 0.57            | 0.07769837<br>2 |
| <i>Sigara denseconscripta</i>    | GAU | 0.975           | 0.07905694<br>2 | 0.95            | 0.15811388<br>3 | 0.96666666<br>7 | 0.10540925<br>5 |
| <i>S. denseconscriptoidea</i>    | GAU | 0.5             | 0.23570226      | 0.4             | 0.31622776<br>6 | 0.65            | 0.14593250<br>6 |
| <i>Tenagobia incerta</i>         | GAU | 0.67117585<br>8 | 0.05966410<br>9 | 0.2             | 0.10838368<br>3 | 0.54386984<br>3 | 0.02711189<br>8 |

**Tabela 6.3.** Valores dos modelos para espécies comno mínimo quatro registros, algoritmo *Random Forest*. (RDF). AUC: Area Under the Curve; AUC\_SD: Desvio padrão da métrica AUC; TSS: True Skilled Statistics; TSS\_SD: Desvio padrão da métrica TSS; JAC: Índice de Jaccard; TSS\_SD: Desvio padrão da métrica JAC.

| Espécie                          | Algorithme | AUC         | AUC_SD      | TSS         | TSS_SD      | JAC         | JAC_SD      |
|----------------------------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Buenoa amnigenus</i>          | RDF        | 0.802493075 | 0.048175206 | 0.526315789 | 0.156917051 | 0.629329161 | 0.049513676 |
| <i>Belostoma anurum</i>          | RDF        | 0.512888889 | 0.06828328  | 0.053333333 | 0.10795518  | 0.508121444 | 0.015080296 |
| <i>Be. dallasi</i>               | RDF        | 0.3         | 0.166048235 | 0.033333333 | 0.105409255 | 0.51        | 0.031622777 |
| <i>Bu. femoralis</i>             | RDF        | 0.75        | 0.166666667 | 0.6         | 0.210818511 | 0.733333333 | 0.140545674 |
| <i>Be. foveolatum</i>            | RDF        | 0.3         | 0.086922699 | 0.08        | 0.13984118  | 0.523611111 | 0.042456506 |
| <i>Bu. fuscipennis</i>           | RDF        | 0.966666667 | 0.105409255 | 0.966666667 | 0.105409255 | 0.966666667 | 0.105409255 |
| <i>Bu. konta</i>                 | RDF        | 0.675510204 | 0.073551227 | 0.442857143 | 0.183811991 | 0.603914141 | 0.053914946 |
| <i>Be. micantulum</i>            | RDF        | 0.57037037  | 0.056616753 | 0.092592593 | 0.087732533 | 0.515522413 | 0.015049196 |
| <i>Bu. mutabilis</i>             | RDF        | 0.644444444 | 0.155379089 | 0.4         | 0.140545674 | 0.621666667 | 0.049721446 |
| <i>Bu. pallipes</i>              | RDF        | 0.5         | 0.527046277 | 0.5         | 0.527046277 | 0.75        | 0.263523138 |
| <i>Bu. platycnemis</i>           | RDF        | 0.668       | 0.150908361 | 0.44        | 0.245854519 | 0.608571429 | 0.081705183 |
| <i>Be. plebejum</i>              | RDF        | 0.616666667 | 0.064963454 | 0.283333333 | 0.13146844  | 0.579128673 | 0.037923948 |
| <i>Bu. pseudomutabilis</i>       | RDF        | 1           | 0           | 1           | 0           | 1           | 0           |
| <i>Bu. salutis</i>               | RDF        | 0.645867769 | 0.083040832 | 0.195454545 | 0.148531223 | 0.53594934  | 0.03444829  |
| <i>Bu. tarsalis</i>              | RDF        | 0.783446712 | 0.046326752 | 0.552380952 | 0.11490134  | 0.652324786 | 0.069084387 |
| <i>Bu. unguis</i>                | RDF        | 0.604296875 | 0.071958219 | 0.20625     | 0.106433665 | 0.541368827 | 0.024609537 |
| <i>Centrocorisa kollari</i>      | RDF        | 0.477777778 | 0.128833534 | 0.333333333 | 0           | 0.6         | 0           |
| <i>Enitharoides brasiliensis</i> | RDF        | 0.8140625   | 0.041307042 | 0.575       | 0.064549722 | 0.668560606 | 0.044158357 |
| <i>Gelastocoris angulatus</i>    | RDF        | 0.85        | 0.174801475 | 0.7         | 0.349602949 | 0.816666667 | 0.1995365   |
| <i>G. f. flavus</i>              | RDF        | 0.611734694 | 0.052332892 | 0.171428571 | 0.112687234 | 0.543283217 | 0.031214722 |
| <i>Heterocoris w. ollalai</i>    | RDF        | 1           | 0           | 1           | 0           | 1           | 0           |
| <i>H. w. wrighti</i>             | RDF        | 0.566666667 | 0.19209337  | 0.366666667 | 0.33147630  | 0.593333333 | 0.08285045  |
| <i>Lethocerus annulipes</i>      | RDF        | 0.624       | 0.080718991 | 0.32        | 0.161932771 | 0.586963119 | 0.059962    |
| <i>Limnocoris pusillus</i>       | RDF        | 0.776       | 0.089962955 | 0.55        | 0.13540064  | 0.659285714 | 0.089595371 |
| <i>Martarega bentoi</i>          | RDF        | 0.781333333 | 0.060170768 | 0.46        | 0.138599699 | 0.616231361 | 0.056794453 |
| <i>M. brasiliensis</i>           | RDF        | 0.693877551 | 0.147165358 | 0.4         | 0.291994471 | 0.606071429 | 0.092276113 |
| <i>M. membranacea</i>            | RDF        | 0.632514178 | 0.046893779 | 0.22173913  | 0.085617713 | 0.537911314 | 0.017012705 |
| <i>Maculambrysus stali</i>       | RDF        | 0.73        | 0.082056891 | 0.44        | 0.142984071 | 0.618280184 | 0.060284279 |
| <i>Notonecta disturbata</i>      | RDF        | 0.736       | 0.189689805 | 0.48        | 0.269979423 | 0.664960317 | 0.115457484 |
| <i>Neoplea maculosa</i>          | RDF        | 0.708333333 | 0.090010287 | 0.433333333 | 0.195631298 | 0.616789322 | 0.068114747 |
| <i>Nerthra raptoria</i>          | RDF        | 0.577777778 | 0.146284575 | 0.4         | 0.262936879 | 0.606666667 | 0.064406119 |

|                                  |     |             |             |            |             |             |             |
|----------------------------------|-----|-------------|-------------|------------|-------------|-------------|-------------|
| <i>Neo. semipicta</i>            | RDF | 0.808       | 0.070047603 | 0.6        | 0.133333333 | 0.710714286 | 0.073557344 |
| <i>Pelocoris magister</i>        | RDF | 0.377777778 | 0.182949467 | 0          | 0           | 0.5         | 0           |
| <i>P. binotulatus nigriculus</i> | RDF | 0.890625    | 0.055609783 | 0.7625     | 0.092233098 | 0.8         | 0.070856024 |
| <i>P. politus</i>                | RDF | 1           | 0           | 1          | 0           | 1           | 0           |
| <i>Ranatra annulipes</i>         | RDF | 0.422222222 | 0.102104065 | 0.3        | 0.105409255 | 0.59        | 0.031622777 |
| <i>R. costalimai</i>             | RDF | 0.504       | 0.078202018 | 0.32       | 0.13984118  | 0.593253968 | 0.044798133 |
| <i>R. magna</i>                  | RDF | 0.522222222 | 0.117705545 | 0.2        | 0.233068633 | 0.556666667 | 0.062952069 |
| <i>Sigara denseconscripta</i>    | RDF | 0.85        | 0.193649167 | 0.6        | 0.516397779 | 0.8         | 0.25819889  |
| <i>S. denseconscriptoides</i>    | RDF | 0.525       | 0.218898759 | 0.35       | 0.241522946 | 0.616666667 | 0.080507649 |
| <i>Tenagobia incerta</i>         | RDF | 0.73433923  | 0.06241193  | 0.31935483 | 0.14220404  | 0.57532881  | 0.04650273  |

**Tabela 6.4.** Valores dos modelos para espécies com no mínimo quatro registros, algoritmo Maxent. (MXD). AUC: Area Under the Curve; AUC\_SD: Desvio padrão da métrica AUC; TSS: True Skilled Statistics; TSS\_SD: Desvio padrão da métrica TSS; JAC: Índice de Jaccard; TSS\_SD: Desvio padrão da métrica JAC.

| Espécie                          | Algoritmo | AUC         | AUC_SD      | TSS         | TSS_SD      | JAC         | JAC_SD      |
|----------------------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Buenoa amnigenus</i>          | MXD       | 0.86592798  | 0.0442289   | 0.68947368  | 0.07212212  | 0.73274092  | 0.05758194  |
| <i>Belostoma anurum</i>          | MXD       | 0.42888889  | 0.07270588  | 0.06        | 0.02108185  | 0.51551724  | 0.00545220  |
| <i>B. dallasi</i>                | MXD       | 0.4         | 0.23394980  | 0           | 0           | 0.5         | 0           |
| <i>Bu. femoralis</i>             | MXD       | 0.775       | 0.1844662   | 0.65        | 0.24152295  | 0.76666667  | 0.1610153   |
| <i>Be. foveolatum</i>            | MXD       | 0.416       | 0.12816656  | 0.08        | 0.19321836  | 0.51555556  | 0.03442652  |
| <i>Bu. fuscipennis</i>           | MXD       | 0.97777778  | 0.07027284  | 0.96666667  | 0.10540926  | 0.96666667  | 0.10540926  |
| <i>Bu. konta</i>                 | MXD       | 0.60816327  | 0.14230538  | 0.24285714  | 0.26125460  | 0.55777778  | 0.07495769  |
| <i>Be. micantulum</i>            | MXD       | 0.61111111  | 0.07025335  | 0.13333333  | 0.15140454  | 0.51951328  | 0.01588099  |
| <i>Bu. mutabilis</i>             | MXD       | 0.38888889  | 0.12001372  | 0.26666667  | 0.14054567  | 0.58        | 0.04216370  |
| <i>Bu. pallipes</i>              | MXD       | 0.3         | 0.48304589  | 0.3         | 0.48304589  | 0.65        | 0.24152295  |
| <i>Bu. platycnemis</i>           | MXD       | 0.776       | 0.08474799  | 0.56        | 0.12649111  | 0.66416667  | 0.06443606  |
| <i>Be. plebejum</i>              | MXD       | 0.65972222  | 0.08790203  | 0.29166667  | 0.15340779  | 0.56773870  | 0.04194275  |
| <i>Bu. pseudomutabilis</i>       | MXD       | 0.9         | 0.12909945  | 0.8         | 0.25819889  | 0.86666667  | 0.17213259  |
| <i>Bu. salutis</i>               | MXD       | 0.709297521 | 0.074437854 | 0.345454545 | 0.175653051 | 0.581910561 | 0.052945632 |
| <i>Bu. tarsalis</i>              | MXD       | 0.74331066  | 0.03255985  | 0.4952381   | 0.05589466  | 0.62671958  | 0.03267366  |
| <i>Bu. unguis</i>                | MXD       | 0.61953125  | 0.04738582  | 0.2625      | 0.18114221  | 0.55423521  | 0.04812711  |
| <i>Centrocorisa kollari</i>      | MXD       | 0.71111111  | 0.14054567  | 0.46666667  | 0.28109135  | 0.66166667  | 0.10483673  |
| <i>Enitharoides brasiliensis</i> | MXD       | 0.8734375   | 0.05385024  | 0.6625      | 0.13241874  | 0.7440404   | 0.08524731  |
| <i>Gelastocoris angulatus</i>    | MXD       | 0.15        | 0.21081851  | 0.1         | 0.21081851  | 0.53333333  | 0.07027284  |
| <i>G. f. flavus</i>              | MXD       | 0.70612245  | 0.07923053  | 0.38571429  | 0.16903085  | 0.59535116  | 0.04001488  |
| <i>Heterocoris w. ollalai</i>    | MXD       | 0.6         | 0.51639778  | 0.6         | 0.51639778  | 0.8         | 0.25819889  |
| <i>H. w. wrighti</i>             | MXD       | 0.55555556  | 0.16144070  | 0.1         | 0.31622777  | 0.55        | 0.15811388  |
| <i>Lethocerus annulipes</i>      | MXD       | 0.652       | 0.07913420  | 0.27        | 0.18885621  | 0.56328333  | 0.04636574  |
| <i>Limnocoris pusillus</i>       | MXD       | 0.851       | 0.07355270  | 0.57        | 0.18885621  | 0.69627942  | 0.08848687  |

|                                  |     |            |             |            |             |            |             |
|----------------------------------|-----|------------|-------------|------------|-------------|------------|-------------|
| <i>Martarega bentoi</i>          | MXD | 0.82       | 0.06773628  | 0.62666667 | 0.16688874  | 0.67942811 | 0.08421228  |
| <i>M. brasiliensis</i>           | MXD | 0.59591837 | 0.11293337  | 0.28571429 | 0.22335313  | 0.58121212 | 0.07453628  |
| <i>M. membranacea</i>            | MXD | 0.76370510 | 0.07871202  | 0.41739130 | 0.21121666  | 0.61073078 | 0.07066942  |
| <i>Maculambrysus stali</i>       | MXD | 0.807      | 0.09369573  | 0.54       | 0.20110804  | 0.66941336 | 0.09959303  |
| <i>Notonecta disturbata</i>      | MXD | 0.748      | 0.18091127  | 0.6        | 0.28284271  | 0.69297619 | 0.1561481   |
| <i>Neoplea maculosa</i>          | MXD | 0.64166667 | 0.11671810  | 0.41666667 | 0.18002058  | 0.62095599 | 0.07776029  |
| <i>Nerthra raptoria</i>          | MXD | 0.47777778 | 0.09147473  | 0          | 0           | 0.5        | 0           |
| <i>Neo. semipicta</i>            | MXD | 0.684      | 0.13914022  | 0.54       | 0.23190036  | 0.67916667 | 0.10387620  |
| <i>Pelocoris magister</i>        | MXD | 0.72222222 | 0.14814815  | 0.53333333 | 0.28109135  | 0.66666667 | 0.09622505  |
| <i>P. binotulatus nigriculus</i> | MXD | 0.809375   | 0.0641281   | 0.6875     | 0.08838835  | 0.75141414 | 0.06115993  |
| <i>P. politus</i>                | MXD | 0.9        | 0.31622777  | 0.9        | 0.31622777  | 0.95       | 0.15811388  |
| <i>Ranatra annulipes</i>         | MXD | 0.61111111 | 0.21754334  | 0.36666667 | 0.33147631  | 0.63166667 | 0.15162698  |
| <i>R. costalimai</i>             | MXD | 0.708      | 0.08230026  | 0.52       | 0.13984118  | 0.67678571 | 0.06850556  |
| <i>R. magna</i>                  | MXD | 0.63333333 | 0.07499428  | 0.4        | 0.14054567  | 0.62166667 | 0.04972145  |
| <i>Sigara denseconscripta</i>    | MXD | 0.525      | 0.218898759 | 0.15       | 0.241522946 | 0.55       | 0.080507649 |
| <i>S. denseconscriptoides</i>    | MXD | 0.425      | 0.31291639  | 0.25       | 0.26352314  | 0.58333333 | 0.08784105  |
| <i>Tenagobia incerta</i>         | MXD | 0.66732570 | 0.07695319  | 0.17741936 | 0.16744529  | 0.53688199 | 0.04013346  |

**Tabela 6.5.** Valores dos modelos para espécies com no mínimo quatro registros, algoritmo *Support Vector Machine*. (SVM). AUC: Area Under the Curve; AUC\_SD: Desvio padrão da métrica AUC; TSS: True Skilled Statistics; TSS\_SD: Desvio padrão da métrica TSS; JAC: Índice de Jaccard; TSS\_SD: Desvio padrão da métrica JAC.

| Espécie                          | Algoritmo | AUC         | AUC_SD      | TSS        | TSS_SD     | JAC        | JAC_SD     |
|----------------------------------|-----------|-------------|-------------|------------|------------|------------|------------|
| <i>Buenoa amnigenus</i>          | SVM       | 0.736842105 | 0.052298439 | 0.41052632 | 0.09862084 | 0.6021257  | 0.02856796 |
| <i>Belostoma anurum</i>          | SVM       | 0.52844444  | 0.08123735  | 0.11333333 | 0.13716711 | 0.5177258  | 0.01377781 |
| <i>Be. dallasi</i>               | SVM       | 0.67777778  | 0.14296488  | 0.46666667 | 0.28109135 | 0.645      | 0.09462401 |
| <i>Bu. femoralis</i>             | SVM       | 0.325       | 0.23717083  | 0.05       | 0.15811388 | 0.51666667 | 0.05270463 |
| <i>Be. foveolatum</i>            | SVM       | 0.452       | 0.18383568  | 0.16       | 0.26331224 | 0.55059524 | 0.0841443  |
| <i>Bu. fuscipennis</i>           | SVM       | 0.97777778  | 0.07027284  | 0.96666667 | 0.10540926 | 0.96666667 | 0.10540926 |
| <i>Bu. konta</i>                 | SVM       | 0.47755102  | 0.18510403  | 0.24285714 | 0.16564312 | 0.56280886 | 0.0553216  |
| <i>Be. micantulum</i>            | SVM       | 0.59108368  | 0.04470491  | 0.1        | 0.12954142 | 0.51263398 | 0.01541841 |
| <i>Bu. mutabilis</i>             | SVM       | 0.34444444  | 0.12227833  | 0.06666667 | 0.14054567 | 0.52       | 0.04216370 |
| <i>Bu. pallipes</i>              | SVM       | 0.7         | 0.48304589  | 0.7        | 0.48304589 | 0.85       | 0.24152295 |
| <i>Bu. platycnemis</i>           | SVM       | 0.436       | 0.23884909  | 0.2        | 0.2981424  | 0.55805556 | 0.09718650 |
| <i>Be. plebejum</i>              | SVM       | 0.57291667  | 0.12419364  | 0.24166667 | 0.11419336 | 0.56660971 | 0.03325033 |
| <i>Bu. pseudomutabilis</i>       | SVM       | 0.525       | 0.46323140  | 0.45       | 0.43779752 | 0.7        | 0.21942686 |
| <i>Bu. salutis</i>               | SVM       | 0.64483471  | 0.05986152  | 0.32272727 | 0.17985046 | 0.55972818 | 0.04816077 |
| <i>Bu. tarsalis</i>              | SVM       | 0.79433107  | 0.03342995  | 0.52857143 | 0.052405   | 0.65786098 | 0.02790069 |
| <i>Bu. unguis</i>                | SVM       | 0.615625    | 0.06352779  | 0.2125     | 0.14191155 | 0.54616992 | 0.03048710 |
| <i>Centrocorisa kollari</i>      | SVM       | 0.73333333  | 0.14998857  | 0.6        | 0.26293688 | 0.72666667 | 0.12866839 |
| <i>Enitharoides brasiliensis</i> | SVM       | 0.7296875   | 0.08334961  | 0.4375     | 0.15866194 | 0.63025641 | 0.05937321 |
| <i>Gelastocoris angulatus</i>    | SVM       | 0.65        | 0.45946829  | 0.6        | 0.45946829 | 0.78333333 | 0.23635608 |
| <i>G. f. flavus</i>              | SVM       | 0.58469388  | 0.12889765  | 0.24285714 | 0.14364860 | 0.55905508 | 0.04131842 |
| <i>Heterocorixa w. ollalai</i>   | SVM       | 0.4         | 0.51639778  | 0.4        | 0.51639778 | 0.7        | 0.25819889 |
| <i>H. w. wrighti</i>             | SVM       | 0.47777778  | 0.14861039  | 0.2        | 0.28109135 | 0.55333333 | 0.07235031 |
| <i>Lethocerus annulipes</i>      | SVM       | 0.54        | 0.09533566  | 0.11       | 0.1197219  | 0.52041925 | 0.0205224  |

|                                  |     |            |            |            |            |            |            |
|----------------------------------|-----|------------|------------|------------|------------|------------|------------|
| <i>Limnocris pusillus</i>        | SVM | 0.822      | 0.07800285 | 0.6        | 0.12472191 | 0.69821429 | 0.07466489 |
| <i>Martarega bentoi</i>          | SVM | 0.83288889 | 0.06885941 | 0.69333333 | 0.06440612 | 0.71763889 | 0.06673819 |
| <i>M. brasiliensis</i>           | SVM | 0.48571429 | 0.14897804 | 0.14285714 | 0.23328474 | 0.51825397 | 0.02970748 |
| <i>M. membranacea</i>            | SVM | 0.59603025 | 0.06789551 | 0.13478261 | 0.06625582 | 0.5333695  | 0.02105130 |
| <i>Maculambrysus stali</i>       | SVM | 0.672      | 0.16518004 | 0.35       | 0.27988093 | 0.60962356 | 0.10080106 |
| <i>Notonecta disturbata</i>      | SVM | 0.664      | 0.25382409 | 0.42       | 0.25733679 | 0.63476191 | 0.0896699  |
| <i>Neoplea maculosa</i>          | SVM | 0.79444444 | 0.06441677 | 0.55       | 0.17655832 | 0.68357143 | 0.0873391  |
| <i>Nerthra raptoria</i>          | SVM | 0.37777778 | 0.17529125 | 0.13333333 | 0.17213259 | 0.54       | 0.05163978 |
| <i>Neo. semipicta</i>            | SVM | 0.776      | 0.22406348 | 0.6        | 0.23094011 | 0.72380952 | 0.09988656 |
| <i>Pelocoris magister</i>        | SVM | 0.51111111 | 0.17529125 | 0.2        | 0.28109135 | 0.55333333 | 0.07235031 |
| <i>P. binotulatus nigriculus</i> | SVM | 0.8390625  | 0.05660095 | 0.65       | 0.14191155 | 0.72025253 | 0.08841332 |
| <i>P. politus</i>                | SVM | 0.3        | 0.48304589 | 0.3        | 0.48304589 | 0.65       | 0.24152295 |
| <i>Ranatra annulipes</i>         | SVM | 0.47777778 | 0.11770554 | 0.23333333 | 0.1610153  | 0.57       | 0.04830459 |
| <i>R. costalimai</i>             | SVM | 0.428      | 0.11631375 | 0.12       | 0.13984118 | 0.52936508 | 0.03131319 |
| <i>R. magna</i>                  | SVM | 0.47777778 | 0.13907395 | 0.13333333 | 0.28109135 | 0.54166667 | 0.09001029 |
| <i>Sigara denseconscripta</i>    | SVM | 0.5        | 0.47140452 | 0.4        | 0.45946829 | 0.68333333 | 0.22838672 |
| <i>S. denseconscriptoidea</i>    | SVM | 0.525      | 0.27512623 | 0.45       | 0.28382311 | 0.66666667 | 0.13608276 |
| <i>Tenagobia incerta</i>         | SVM | 0.68761707 | 0.06080225 | 0.25161290 | 0.11359237 | 0.5514155  | 0.02577546 |

**Tabela 6.6.** Valores dos modelos para espécies com no mínimo vinte registros, média ponderada dos algoritmos.(WMEA). AUC: Area Under the Curve; AUC\_SD: Desvio padrão da métrica AUC; TSS: True Skilled Statistics; TSS\_SD: Desvio padrão da métrica TSS; JAC: Índice de Jaccard; TSS\_SD: Desvio padrão da métrica JAC.

| Espécie                          | Algoritmo | AUC         | AUC_SD      | TSS         | TSS_SD      | JAC         | JAC_SD      |
|----------------------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Buenoa amnigenus</i>          | WMEA      | 0.601822751 | 0.004535149 | 0.247737557 | 0.023996836 | 0.546387521 | 0.031930109 |
| <i>Belostoma anurum</i>          | WMEA      | 0.541450786 | 0.115423855 | 0.165154265 | 0.010266523 | 0.545013477 | 0.003049517 |
| <i>Bu. konta</i>                 | WMEA      | 0.42916524  | 0.104359542 | 0.153846154 | 0.217571317 | 0.513157895 | 0.018608073 |
| <i>Be. micantulum</i>            | WMEA      | 0.547673972 | 0.011146243 | 0.093137255 | 0.103986291 | 0.514380009 | 0.013335347 |
| <i>Be. plebejum</i>              | WMEA      | 0.603049308 | 0.057345381 | 0.180147059 | 0.077989719 | 0.55        | 0.023570226 |
| <i>Bu. salutis</i>               | WMEA      | 0.674071039 | 0.026510276 | 0.262541806 | 0.063852452 | 0.573232323 | 0.024998725 |
| <i>Bu. tarsalis</i>              | WMEA      | 0.654398186 | 0.004522918 | 0.250952381 | 0.015489006 | 0.554432086 | 0.005243124 |
| <i>Bu. unguis</i>                | WMEA      | 0.646135409 | 0.03817639  | 0.299342105 | 0.24655697  | 0.524616626 | 0.001141415 |
| <i>Enitharoides brasiliensis</i> | WMEA      | 0.892854208 | 0.08278054  | 0.842948718 | 0.104252923 | 0.842948718 | 0.104252923 |
| <i>G. f. flavus</i>              | WMEA      | 0.57475     | 0.137532269 | 0.26        | 0.084852814 | 0.553479853 | 0.015022781 |
| <i>Lethocerus annulipes</i>      | WMEA      | 0.679861111 | 0.02848069  | 0.233333333 | 0.094280904 | 0.556022409 | 0.045555899 |
| <i>Limnocris pusillus</i>        | WMEA      | 0.596472384 | 0.006555798 | 0.131578947 | 0.186080732 | 0.524193548 | 0.034214844 |
| <i>Martarega bentoi</i>          | WMEA      | 0.664757202 | 0.055497698 | 0.312592593 | 0.180181284 | 0.576768258 | 0.063432236 |
| <i>M. brasiliensis</i>           | WMEA      | 0.567197232 | 0.010178423 | 0.276470588 | 0.108145743 | 0.557777778 | 0.003142697 |
| <i>M. membranacea</i>            | WMEA      | 0.69657857  | 0.016329118 | 0.0625      | 0.088388348 | 0.513513514 | 0.019110994 |
| <i>Maculambrysus stali</i>       | WMEA      | 0.38691358  | 0.005936205 | 0.116666667 | 0.070710678 | 0.52424569  | 0.009905591 |

|                                          |      |             |             |             |             |             |             |
|------------------------------------------|------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Neoplea maculosa</i>                  | WMEA | 0.47614645  | 0.054654333 | 0.115384615 | 0.163178488 | 0.532608696 | 0.04611566  |
| <i>Pelocoris binotulatus nigrliculus</i> | WMEA | 0.566358025 | 0.120033559 | 0.194444444 | 0.03928371  | 0.553977273 | 0.012052956 |
| <i>Tenagobia incerta</i>                 | WMEA | 0.705403061 | 0.003672626 | 0.232857143 | 0.074751288 | 0.523532669 | 0.000391532 |

**Tabela 6.7.** Valores dos modelos para espécies com no mínimo vinte registros, algoritmo de modelo Gaussiano. (GAU). AUC: Area Under the Curve; AUC\_SD: Desvio padrão da métrica AUC; TSS: True Skilled Statistics; TSS\_SD: Desvio padrão da métrica TSS; JAC: Índice de Jaccard; TSS\_SD: Desvio padrão da métrica JAC.

| Espécie                                  | Algoritmo | AUC         | AUC_SD      | TSS         | TSS_SD      | JAC         | JAC_SD      |
|------------------------------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Buenoa amnigenus</i>                  | GAU       | 0.576636433 | 0.012957568 | 0.126696833 | 0.07039072  | 0.522711864 | 0.003835155 |
| <i>Belostoma anurum</i>                  | GAU       | 0.480599537 | 0.009779748 | 0.121597096 | 0.023099677 | 0.525661376 | 0.016087615 |
| <i>Bu. konta</i>                         | GAU       | 0.396058487 | 0.092602668 | 0.038461538 | 0.054392829 | 0.51        | 0.014142136 |
| <i>Be. micantulum</i>                    | GAU       | 0.526517579 | 0.032336187 | 0.097222222 | 0.137492985 | 0.51984127  | 0.028059793 |
| <i>Be. plebejum</i>                      | GAU       | 0.577881704 | 0.088044275 | 0.159313725 | 0.107452501 | 0.544202899 | 0.031768566 |
| <i>Bu. salutis</i>                       | GAU       | 0.649426461 | 0.060694631 | 0.29180602  | 0.140711885 | 0.576595745 | 0.033098615 |
| <i>Bu. tarsalis</i>                      | GAU       | 0.688922902 | 0.01261889  | 0.302857143 | 0.024243661 | 0.564659978 | 0.000788302 |
| <i>Bu. unguis</i>                        | GAU       | 0.66894396  | 0.060765076 | 0.277960526 | 0.127930503 | 0.528490028 | 0.014101845 |
| <i>Enitharoides brasiliensis</i>         | GAU       | 0.898771368 | 0.074412412 | 0.842948718 | 0.104252923 | 0.842948718 | 0.104252923 |
| <i>G. f. flavus</i>                      | GAU       | 0.57525     | 0.102884037 | 0.125       | 0.176776695 | 0.529411765 | 0.041594517 |
| <i>Lethocerus annulipes</i>              | GAU       | 0.676805556 | 0.092905974 | 0.375       | 0.176776695 | 0.582692308 | 0.046233905 |
| <i>Limnocoris pusillus</i>               | GAU       | 0.592098197 | 0.006845612 | 0.131578947 | 0.186080732 | 0.53125     | 0.044194174 |
| <i>Martarega bento</i>                   | GAU       | 0.60200823  | 0.042414767 | 0.272592593 | 0.123612741 | 0.570835496 | 0.055042043 |
| <i>M. brasiliensis</i>                   | GAU       | 0.650657439 | 0.09806519  | 0.476470588 | 0.174696969 | 0.613333333 | 0.075424723 |
| <i>M. membranacea</i>                    | GAU       | 0.69241506  | 0.039010997 | 0.298863636 | 0.0369624   | 0.518928571 | 0.001515229 |
| <i>Maculambrysus stali</i>               | GAU       | 0.380246914 | 0.003491885 | 0.116666667 | 0.070710678 | 0.52424569  | 0.009905591 |
| <i>Neoplea maculosa</i>                  | GAU       | 0.464080991 | 0.028700063 | 0.177884615 | 0.07479014  | 0.549275362 | 0.022545434 |
| <i>Pelocoris binotulatus nigrliculus</i> | GAU       | 0.608024691 | 0.266256257 | 0.444444444 | 0.314269681 | 0.63125     | 0.097227182 |
| <i>Tenagobia incerta</i>                 | GAU       | 0.680341582 | 0.016887947 | 0.270714286 | 0.071720831 | 0.551577095 | 0.030344233 |

**Tabela 6.8.** Valores dos modelos para espécies com no mínimo vinte registros, algoritmo Random Forest. (RDF). AUC: Area Under the Curve; AUC\_SD: Desvio padrão da métrica AUC; TSS: True Skilled Statistics; TSS\_SD: Desvio padrão da métrica TSS; JAC: Índice de Jaccard; TSS\_SD: Desvio padrão da métrica JAC. .

| Espécie                 | Algoritmo | AUC         | AUC_SD      | TSS         | TSS_SD      | JAC         | JAC_SD      |
|-------------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Buenoa amnigenus</i> | RDF       | 0.535955959 | 0.044573309 | 0.082579186 | 0.007998945 | 0.516640502 | 0.009102473 |
| <i>Belostoma anurum</i> | RDF       | 0.599609356 | 0.009633017 | 0.156079855 | 0.071865662 | 0.538398693 | 0.015020242 |
| <i>Bu. konta</i>        | RDF       | 0.356521101 | 0.16525323  | 0           | 0           | 0.5         | 0           |

|                                         |     |             |             |             |             |             |             |
|-----------------------------------------|-----|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Be. micantulum</i>                   | RDF | 0.521281879 | 0.002639303 | 0.132352941 | 0.048526936 | 0.529647436 | 0.012465023 |
| <i>Be. plebejum</i>                     | RDF | 0.633287077 | 0.132026059 | 0.230392157 | 0.090121453 | 0.553156146 | 0.025841112 |
| <i>Bu. salutis</i>                      | RDF | 0.657371702 | 0.021722133 | 0.27090301  | 0.106420753 | 0.574727481 | 0.029006388 |
| <i>Bu. tarsalis</i>                     | RDF | 0.574779138 | 0.017565751 | 0.123809524 | 0.107749605 | 0.52052828  | 0.020301659 |
| <i>Bu. unguis</i>                       | RDF | 0.610950755 | 0.017420202 | 0.140625    | 0.198873782 | 0.515306122 | 0.021646126 |
| <i>Enitharoides brasiliensis</i>        | RDF | 0.862754767 | 0.11552665  | 0.766025641 | 0.213038582 | 0.791666667 | 0.176776695 |
| <i>G. f. flavus</i>                     | RDF | 0.57685     | 0.161715321 | 0.13        | 0.042426407 | 0.529824561 | 0.004962153 |
| <i>Lethocerus annulipes</i>             | RDF | 0.710833333 | 0.062461099 | 0.258333333 | 0.129636243 | 0.558779762 | 0.049455385 |
| <i>Limnocoris pusillus</i>              | RDF | 0.54377014  | 0.024684179 | 0.078947368 | 0.111648439 | 0.521428571 | 0.030304576 |
| <i>Martarega bentoi</i>                 | RDF | 0.685095199 | 0.144397994 | 0.278518519 | 0.341506386 | 0.58328841  | 0.104445961 |
| <i>M. brasiliensis</i>                  | RDF | 0.693910035 | 0.036896783 | 0.376470588 | 0.033275613 | 0.583333333 | 0.058925565 |
| <i>M. membranacea</i>                   | RDF | 0.64702795  | 0.028067967 | 0.140909091 | 0.057854191 | 0.517703349 | 0.01217983  |
| <i>Maculambryus stali</i>               | RDF | 0.398703704 | 0.026974814 | 0.055555556 | 0.07856742  | 0.514705882 | 0.020797258 |
| <i>Neoplea maculosa</i>                 | RDF | 0.523483728 | 0.121599354 | 0.230769231 | 0.326356976 | 0.544117647 | 0.062391775 |
| <i>Pelocoris binotulatus nigriculus</i> | RDF | 0.641975309 | 0.20951312  | 0.444444444 | 0.15713484  | 0.626086957 | 0.036892528 |
| <i>Tenagobia incerta</i>                | RDF | 0.678740051 | 0.052523964 | 0.285357143 | 0.177281772 | 0.535835913 | 0.042360731 |

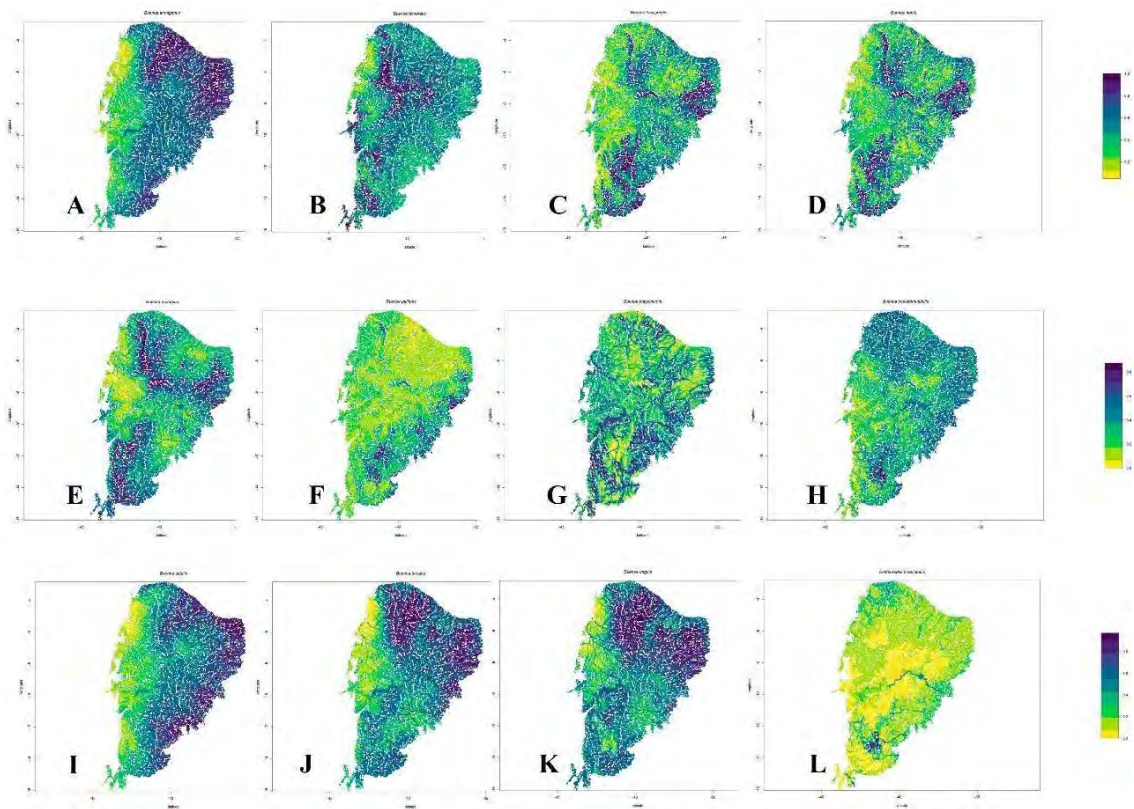
**Tabela 6.9.** Valores dos modelos para espécies com no mínimo vinte registros, algoritmo Maxent. (MXD). AUC: Area Under the Curve; AUC\_SD: Desvio padrão da métrica AUC; TSS: True Skilled Statistics; TSS\_SD: Desvio padrão da métrica TSS; JAC: Índice de Jaccard; TSS\_SD: Desvio padrão da métrica JAC. .

| Espécie                          | Algoritmo | AUC         | AUC_SD      | TSS         | TSS_SD      | JAC         | JAC_SD      |
|----------------------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Buenoa amnigenus</i>          | MXD       | 0.638925288 | 0.010279188 | 0.175339367 | 0.084788822 | 0.532346491 | 0.016282064 |
| <i>Belostoma anurum</i>          | MXD       | 0.546488648 | 0.271413054 | 0.25862069  | 0.365744887 | 0.55        | 0.070710678 |
| <i>Bu. konta</i>                 | MXD       | 0.49772605  | 0.107817446 | 0.115384615 | 0.163178488 | 0.532608696 | 0.04611566  |
| <i>Be. micantulum</i>            | MXD       | 0.570377579 | 0.004593294 | 0.009803922 | 0.013864839 | 0.502475248 | 0.003500529 |
| <i>Be. plebejum</i>              | MXD       | 0.590100562 | 0.016936003 | 0.138480392 | 0.136915284 | 0.538652482 | 0.03961804  |
| <i>Bu. salutis</i>               | MXD       | 0.644534177 | 0.015261155 | 0.120401338 | 0.047298112 | 0.527321083 | 0.006496629 |
| <i>Bu. tarsalis</i>              | MXD       | 0.631494785 | 0.012861968 | 0.299047619 | 0.086199684 | 0.564121572 | 0.020966843 |
| <i>Bu. unguis</i>                | MXD       | 0.616401651 | 0.005793982 | 0.199013158 | 0.016282064 | 0.548589342 | 0.004433271 |
| <i>Enitharoides brasiliensis</i> | MXD       | 0.94713593  | 0.025656447 | 0.804487179 | 0.158645752 | 0.840686275 | 0.107452501 |
| <i>G. f. flavus</i>              | MXD       | 0.50975     | 0.116319066 | 0.04        | 0.056568542 | 0.505319149 | 0.007522413 |
| <i>Lethocerus annulipes</i>      | MXD       | 0.648611111 | 0.104101832 | 0.35        | 0.212132034 | 0.564705882 | 0.04991342  |
| <i>Limnocoris pusillus</i>       | MXD       | 0.569866866 | 0.005006791 | 0.078947368 | 0.111648439 | 0.507575758 | 0.010713739 |
| <i>Martarega bentoi</i>          | MXD       | 0.622701783 | 0.025316945 | 0.174074074 | 0.036664796 | 0.547777778 | 0.010999439 |
| <i>M. brasiliensis</i>           | MXD       | 0.360484429 | 0.170390714 | 0.158823529 | 0.058232323 | 0.535842294 | 0.027878762 |
| <i>M. membranacea</i>            | MXD       | 0.669335686 | 0.03364317  | 0.18030303  | 0.169277078 | 0.524479167 | 0.012521683 |

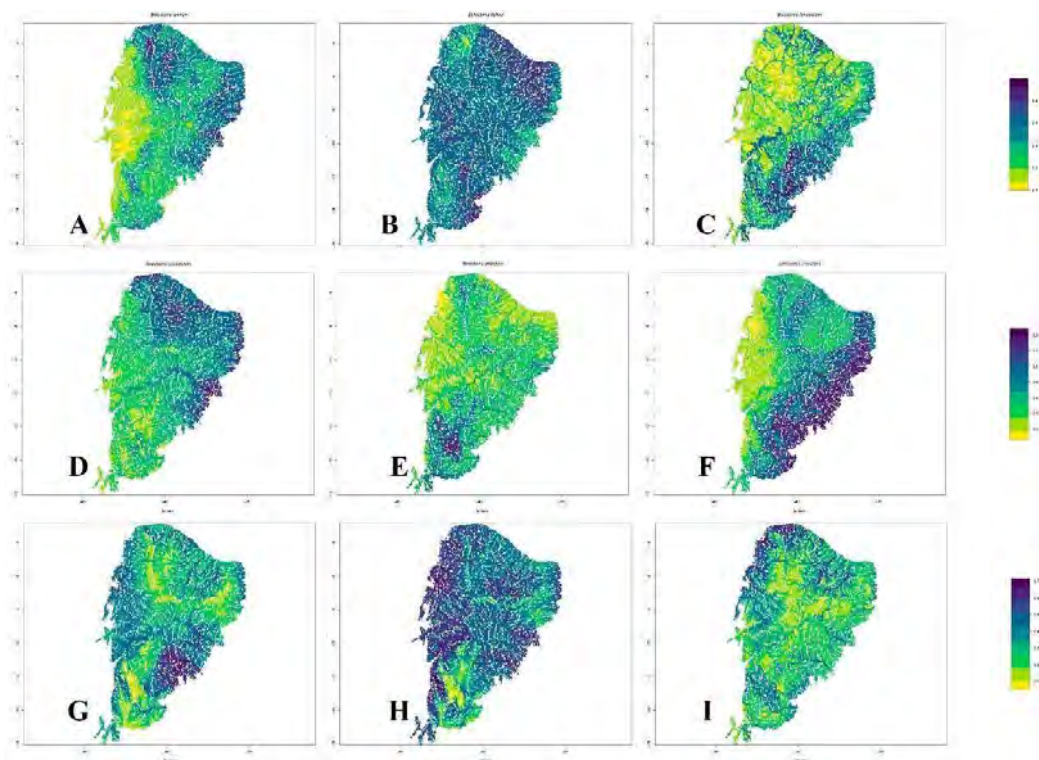
|                                         |     |             |             |             |             |             |             |
|-----------------------------------------|-----|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Maculambryus stali</i>               | MXD | 0.388888889 | 0.07856742  | 0.166666667 | 0.23570226  | 0.55        | 0.070710678 |
| <i>Neoplea maculosa</i>                 | MXD | 0.43897929  | 0.09048038  | 0.115384615 | 0.163178488 | 0.532608696 | 0.04611566  |
| <i>Pelocoris binotulatus nigriculus</i> | MXD | 0.478395062 | 0.22260769  | 0.194444444 | 0.27498597  | 0.53        | 0.042426407 |
| <i>Tenagobia incerta</i>                | MXD | 0.640669388 | 0.061844425 | 0.097857143 | 0.087883271 | 0.513657214 | 0.012827    |

**Tabela 6.10.** Valores dos modelos para espécies com no mínimo quatro registros, algoritmo *Support Vector Machine*. (SVM). AUC: Area Under the Curve; AUC\_SD: Desvio padrão da métrica AUC; TSS: True Skilled Statistics; TSS\_SD: Desvio padrão da métrica TSS; JAC: Índice de Jaccard; TSS\_SD: Desvio padrão da métrica JAC. .

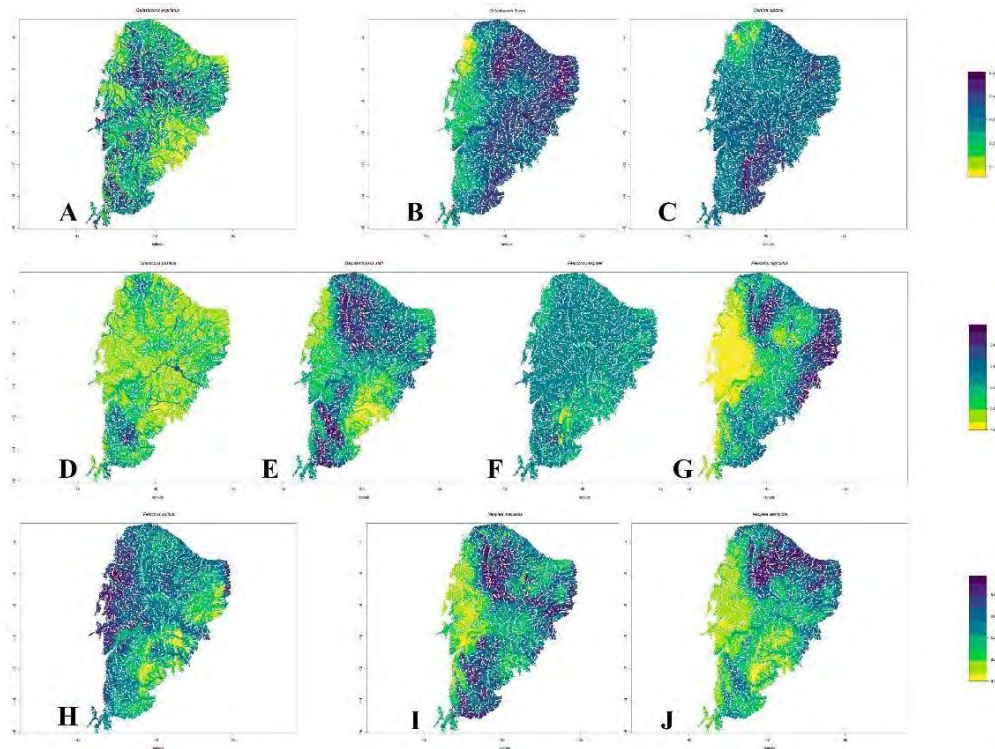
| Espécie                                 | Algoritmo | AUC         | AUC_SD      | TSS         | TSS_SD      | JAC         | JAC_SD      |
|-----------------------------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Buenoa amnigenus</i>                 | SVM       | 0.523927131 | 0.050574328 | 0.136877828 | 0.139181652 | 0.53076403  | 0.029642069 |
| <i>Belostoma anurum</i>                 | SVM       | 0.474242509 | 0.02663287  | 0.078039927 | 0.035932831 | 0.52039312  | 0.009729233 |
| <i>Bu. konta</i>                        | SVM       | 0.523546384 | 0.112796827 | 0.136363636 | 0.192847304 | 0.514705882 | 0.020797258 |
| <i>Be. micantulum</i>                   | SVM       | 0.472987152 | 0.034928293 | 0.055555556 | 0.07856742  | 0.514705882 | 0.020797258 |
| <i>Be. plebejum</i>                     | SVM       | 0.610801735 | 0.095316519 | 0.280637255 | 0.102253186 | 0.582641196 | 0.034650581 |
| <i>Bu. salutis</i>                      | SVM       | 0.62079423  | 0.03903083  | 0.377090301 | 0.010642075 | 0.578315549 | 0.04446365  |
| <i>Bu. tarsalis</i>                     | SVM       | 0.700247619 | 0.053524616 | 0.362380952 | 0.059935718 | 0.599206349 | 0.005611959 |
| <i>Bu. unguis</i>                       | SVM       | 0.645187251 | 0.110032092 | 0.314967105 | 0.224459883 | 0.554824561 | 0.040317492 |
| <i>Enitharoides brasiliensis</i>        | SVM       | 0.85529668  | 0.096611195 | 0.685897436 | 0.208505846 | 0.729166667 | 0.147313913 |
| <i>G. f. flavus</i>                     | SVM       | 0.5493      | 0.062649661 | 0.115       | 0.049497475 | 0.519208038 | 0.012119442 |
| <i>Lethocerus annulipes</i>             | SVM       | 0.667361111 | 0.099191368 | 0.333333333 | 0.23570226  | 0.587542088 | 0.059520773 |
| <i>Limnecoris pusillus</i>              | SVM       | 0.661272542 | 0.002818194 | 0.257518797 | 0.140889697 | 0.550420168 | 0.029710369 |
| <i>Martarega bentoi</i>                 | SVM       | 0.653218107 | 0.007379518 | 0.423703704 | 0.023046443 | 0.625390869 | 0.022110906 |
| <i>M. brasiliensis</i>                  | SVM       | 0.692387543 | 0.152186996 | 0.535294118 | 0.091507936 | 0.637681159 | 0.040991697 |
| <i>M. membranacea</i>                   | SVM       | 0.689136249 | 0.013595897 | 0.271212121 | 0.040712209 | 0.527139208 | 0.013997644 |
| <i>Maculambryus stali</i>               | SVM       | 0.431604938 | 0.000698377 | 0.177777778 | 0.062853936 | 0.542050691 | 0.008961031 |
| <i>Neoplea maculosa</i>                 | SVM       | 0.513313609 | 0.018828287 | 0.216346154 | 0.12918297  | 0.562121212 | 0.040712209 |
| <i>Pelocoris binotulatus nigriculus</i> | SVM       | 0.407407407 | 0.017459427 | 0.166666667 | 0.07856742  | 0.545955882 | 0.023396916 |
| <i>Tenagobia incerta</i>                | SVM       | 0.714503827 | 0.033228607 | 0.185714286 | 0.161624407 | 0.537740272 | 0.027183664 |



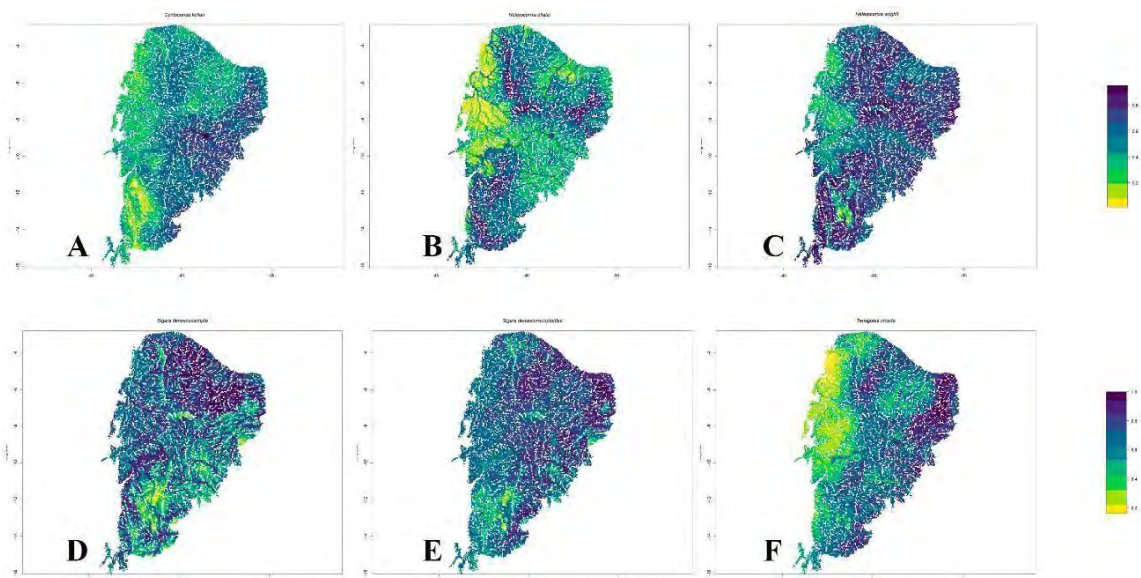
**Figura 6.1.** Mapas de adequabilidade para espécies de Notonectidae com no mínimo quatro registros, algoritmo GAU. A: *Buenoa amnigenus*; B: *B. femoralis*; C: *B. fuscipennis*; D: *B. konta*; E: *B. mutabilis*; F: *B. pallipes*; G: *B. platycnemis*; H: *B. pseudomutabilis*; I: *B. salutis*; J: *B. tarsalis*; K: *B. unguis*; L: *Enitharoides brasiliensis*.



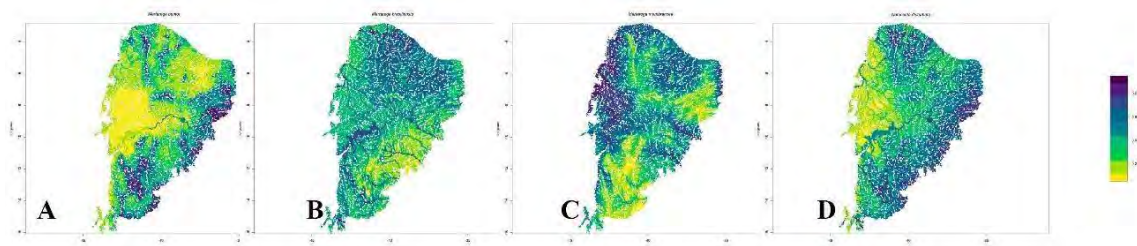
**Figura 6.2.** Mapas de adequabilidade para espécies de Nepoideacom no mínimo quatro registros, algoritmo GAU. A: *Belostoma anurum*; B: *B. dallasi*; C: *B. foveolatum*; D: *B. micantulum*; E: *B. plebejum*; F: *Lethocerus annulipes*; G: *Ranatra annulipes*; H: *R. costalimai*; I: *R. magna*.



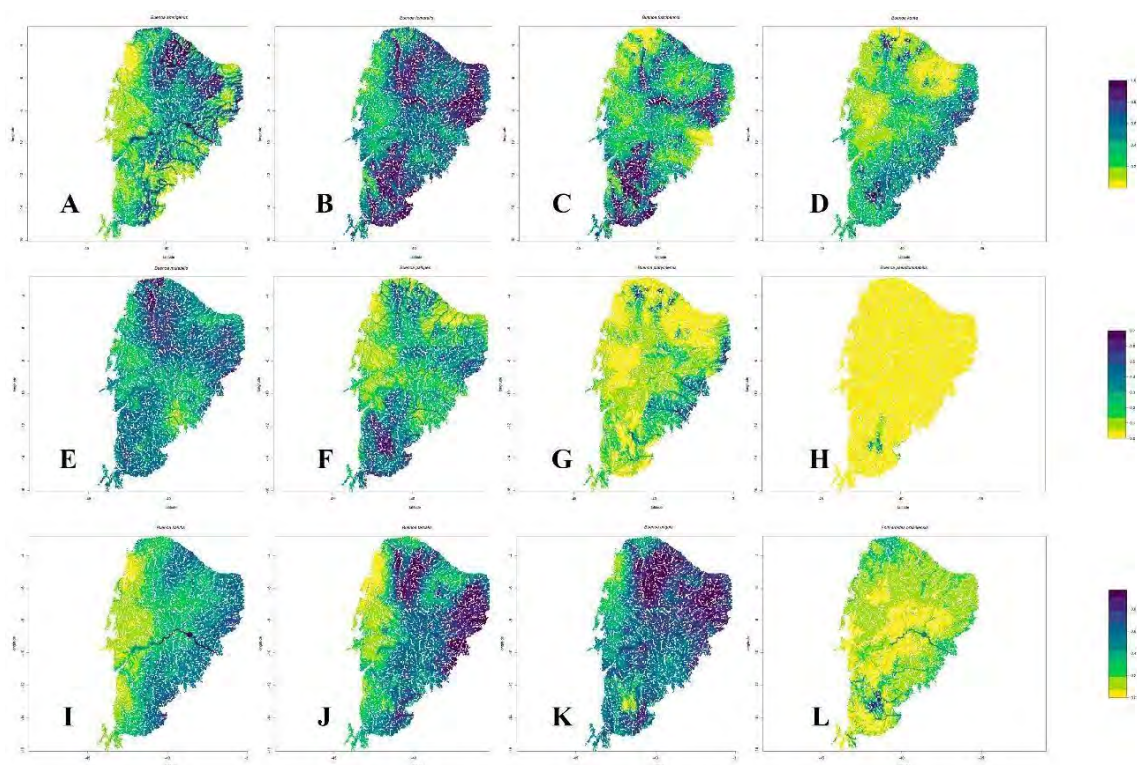
**Figura 6.3.** Mapas de adequabilidade para espécies de Gelastocoridae(A-C), Naucoridae (D—H) e Pleidae (I—J) com no mínimo quatro registros, algoritmo GAU. A: *Gelastocoris angulatus*; B: *G. f. flavus*; C: *Nerthra raptoria*; D: *Limnocoris pusillus*; E: *Maculambrysus stali*; F: *Pelocoris magister*; G: *P. magister*; H: *P. b. nigriculus*; I: *Neoplea maculosa*; J: *N. semipicta*.



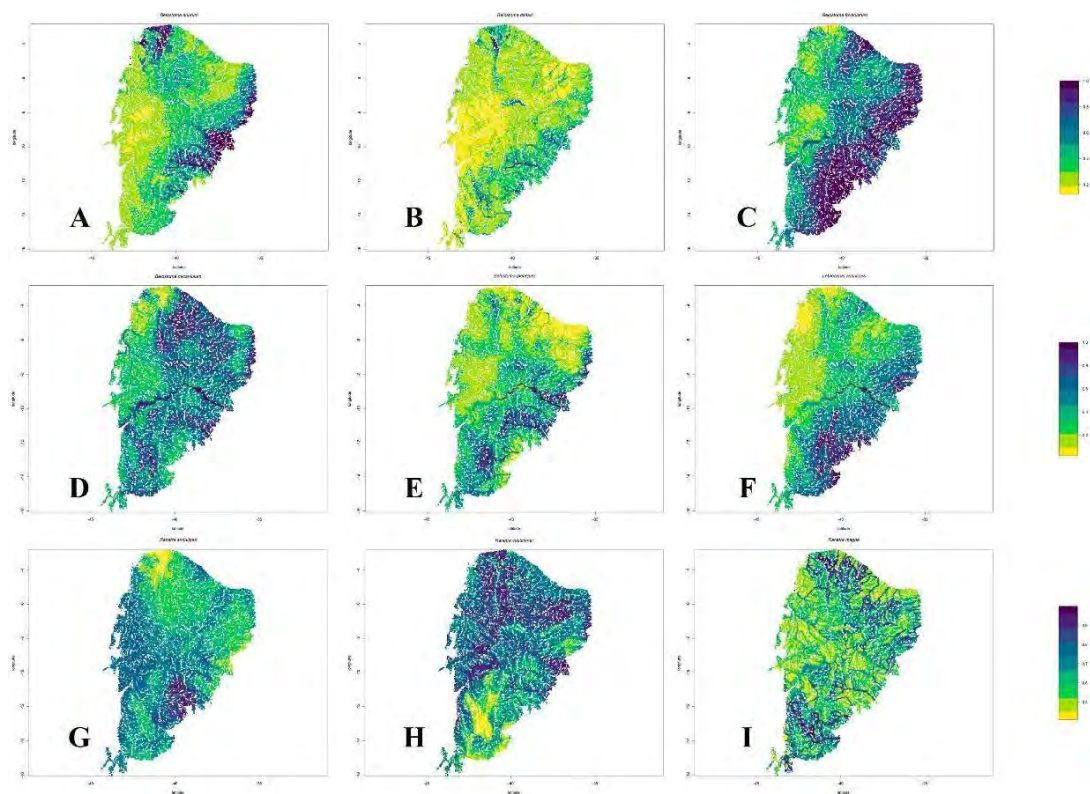
**Figura 6.4.** Mapas de adequabilidade para espécies de Corixoidea com no mínimo quatro registros, Corixidae (A-I) e Micronectidae (J) algoritmo GAU. A: *Centrocorisa kollari*; B: *Heterocorixa wrighti ollalai*; C: *H. w. wrighti*; D: *Sigara denseconscripta*; E: *S. denseconscriptoidea*; F: *Tenagobia incerta*.



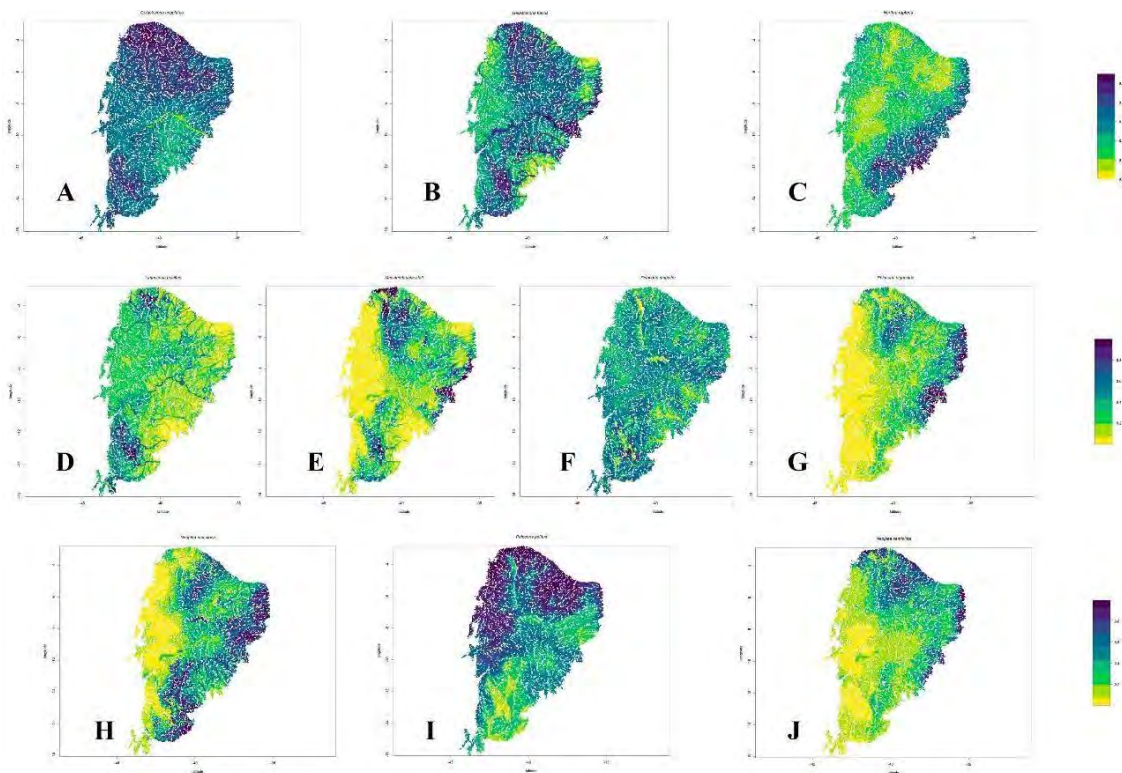
**Figura 6.5.** Mapas de adequabilidade para espécies de Notonectidae, subfamília Notonectinae, algoritmo GAU. A: *Martarega bentoi*; B: *M. brasiliensis*; C: *M. membranacea*; D: *Notonecta disturbata*.



**Figura 6.6.** Mapas de adequabilidade para espécies de Notonectidae com no mínimo quatro registros, algoritmo MXD. A: *Buena amnigenus*; B: *B. femoralis*; C: *B. fuscipennis*; D: *B. kosta*; E: *B. mutabilis*; F: *B. pallipes*; G: *B. platycnemis*; H: *B. pseudomutabilis*; I: *B. salutis*; J: *B. tarsalis*; K: *B. unguis*; L: *Enitharoides brasiliensis*.

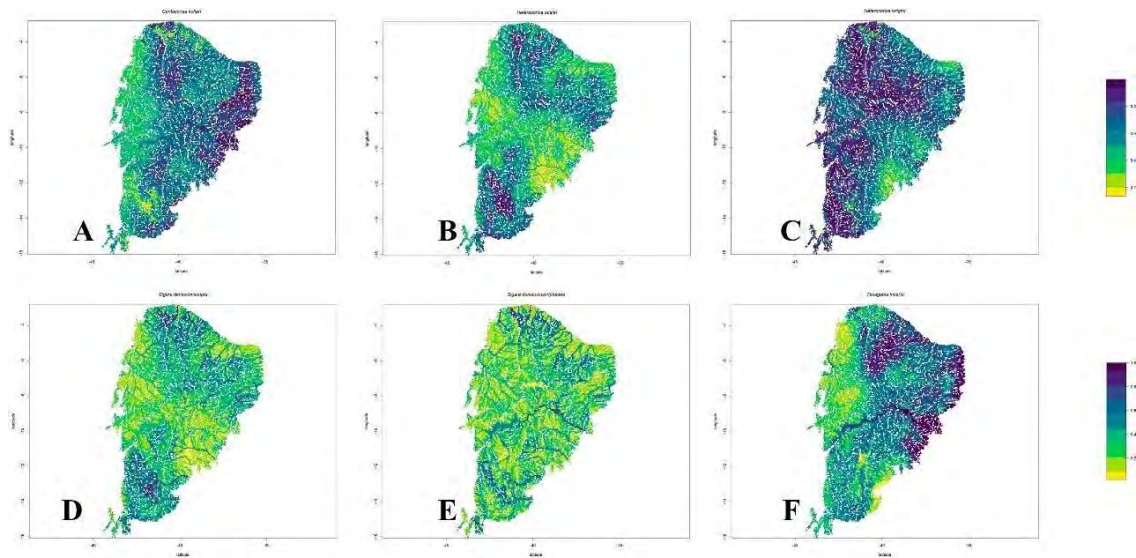


**Figura 6.7.** Mapas de adequabilidade para espécies de Nepoideae com no mínimo quatro registros, algoritmo MXD. A: *Belostoma anurum*; B: *B. dallasi*; C: *B. foveolatum*; D: *B. micantulum*; E: *B. plebejum*; F: *Lethocerus annulipes*; G: *Ranatra annulipes*; H: *R. costalimai*; I: *R. magna*.

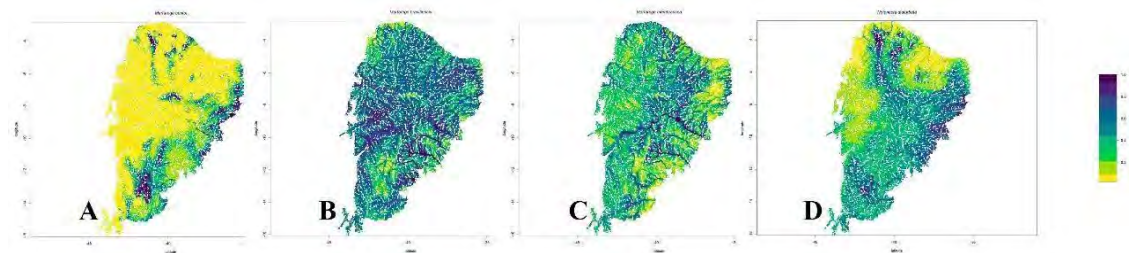


**Figura 6.8.** Mapas de adequabilidade para espécies de Gelastocoridae (A-C), Naucoridae (D-H) e Pleidae (I-J) com no mínimo quatro registros, algoritmo MXD. A: *Gelastocoris angulatus*; B: *G. f. flavus*; C: *G. f. flavus*; D: *G. f. flavus*; E: *G. f. flavus*; F: *G. f. flavus*; G: *G. f. flavus*; H: *G. f. flavus*; I: *G. f. flavus*; J: *G. f. flavus*.

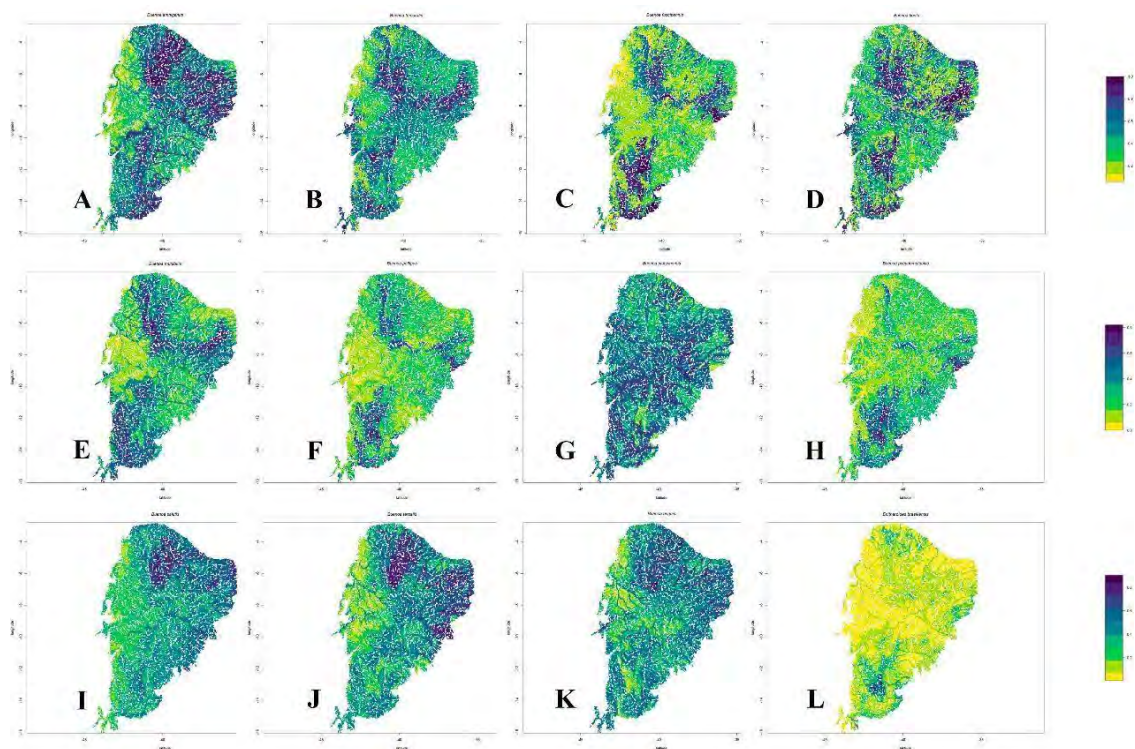
*Nerthra raptoria*; D: *Limnocoris pusillus*; E: *Maculambrysus stali*; F: *Pelocoris magister*; G: *P. magister*; H: *P. b. nigriculus*; I: *Neoplea maculosa*; J: *N. semipicta*.



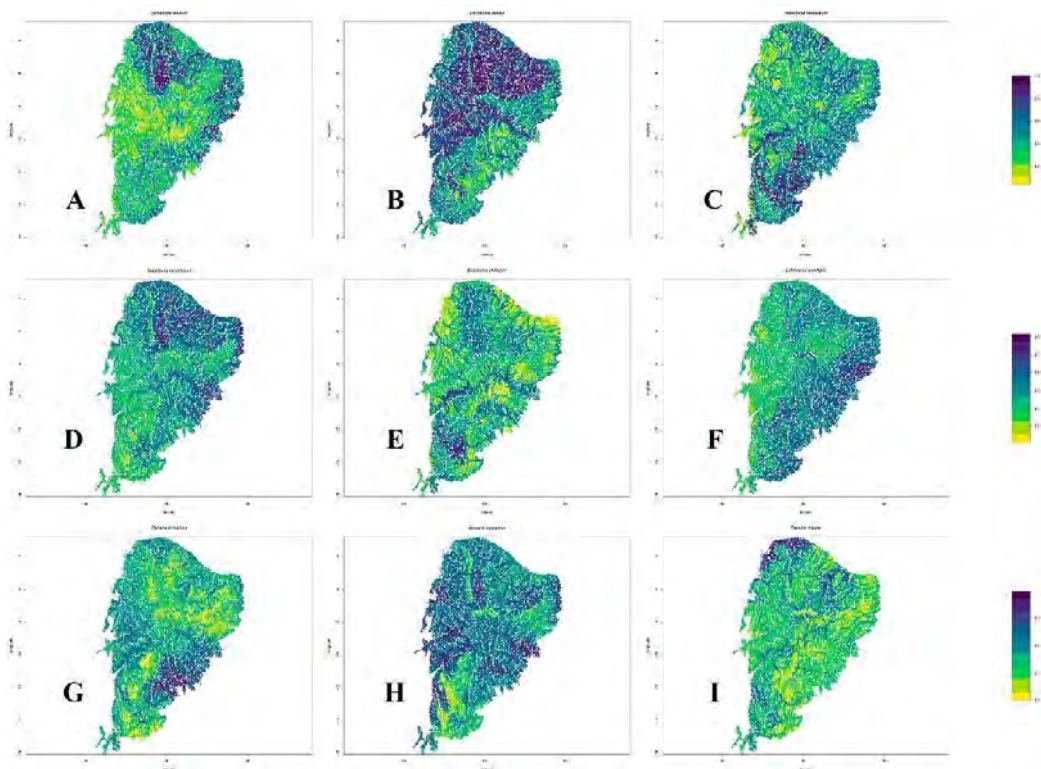
**Figura 6.9.** Mapas de adequabilidade para espécies de Corixoidea com no mínimo quatro registros, Corixidae (A-I) e Micronectidae (J) algoritmo MXD. A: *Centrocorisa kollari*; B: *Heterocorixa wrighti* *ollalai*; C: *H. w. wrighti*; D: *Sigara denseconscripta*; E: *S. denseconscriptoidea*; F: *Tenagobia incerta*.



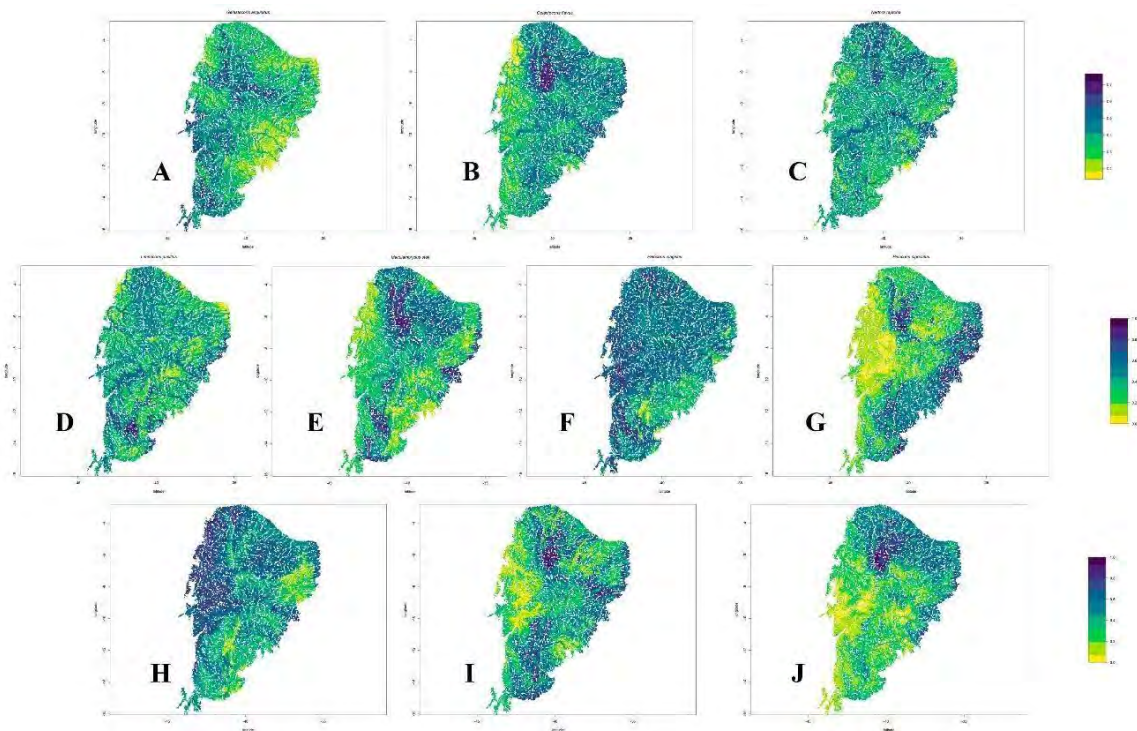
**Figura 6.10.** Mapas de adequabilidade para espécies de Notonectidae, subfamília Notonectinae, algoritmo MXD. A: *Martarega bentoi*; B: *M. brasiliensis*; C: *M. membranacea*; D: *Notonecta disturbata*.



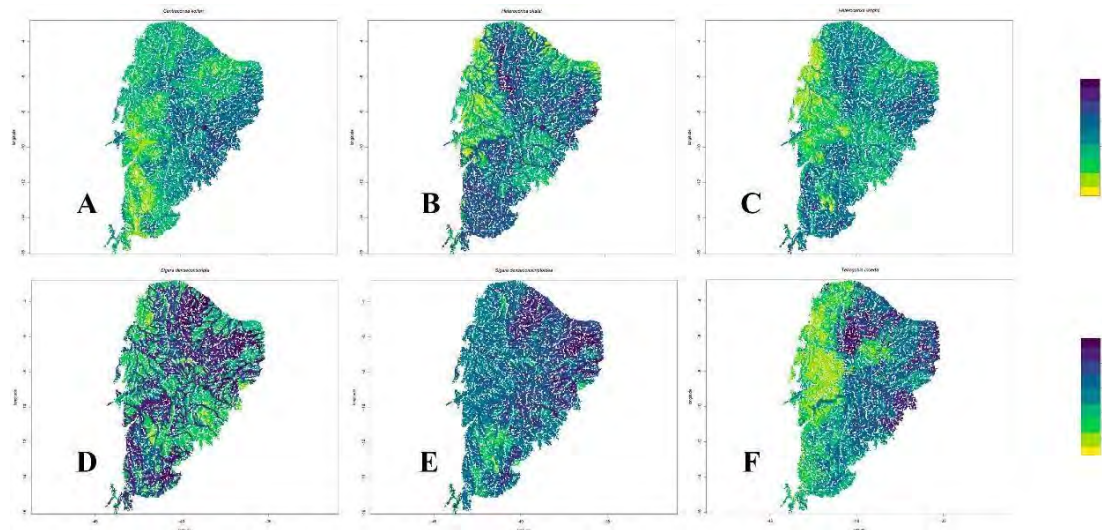
**Figura 6.11.** Mapas de adequabilidade para espécies de Notonectidae com no mínimo quatro registros, algoritmo RDF. A: *Buenoa amnigenus*; B: *B. femoralis*; C: *B. fuscipennis*; D: *B. kosta*; E: *B. mutabilis*; F: *B. pallipes*; G: *B. platycnemis*; H: *B. pseudomutabilis*; I: *B. salutis*; J: *B. tarsalis*; K: *B. unguis*; L: *Enitharoides brasiliensis*.



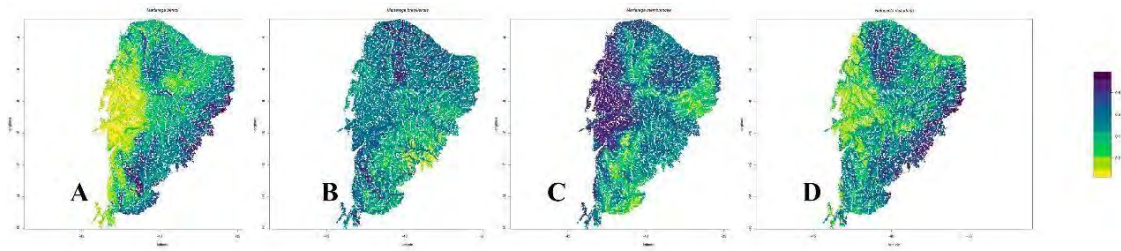
**Figura 6.12.** Mapas de adequabilidade para espécies de Nepoidea com no mínimo quatro registros, algoritmo RDF. A: *Belostoma anurum*; B: *B. dallasi*; C: *B. foveolatum*; D: *B. micantulum*; E: *B. plebejum*; F: *Lethocerus annulipes*; G: *Ranatra annulipes*; H: *R. costalimai*; I: *R. magna*.



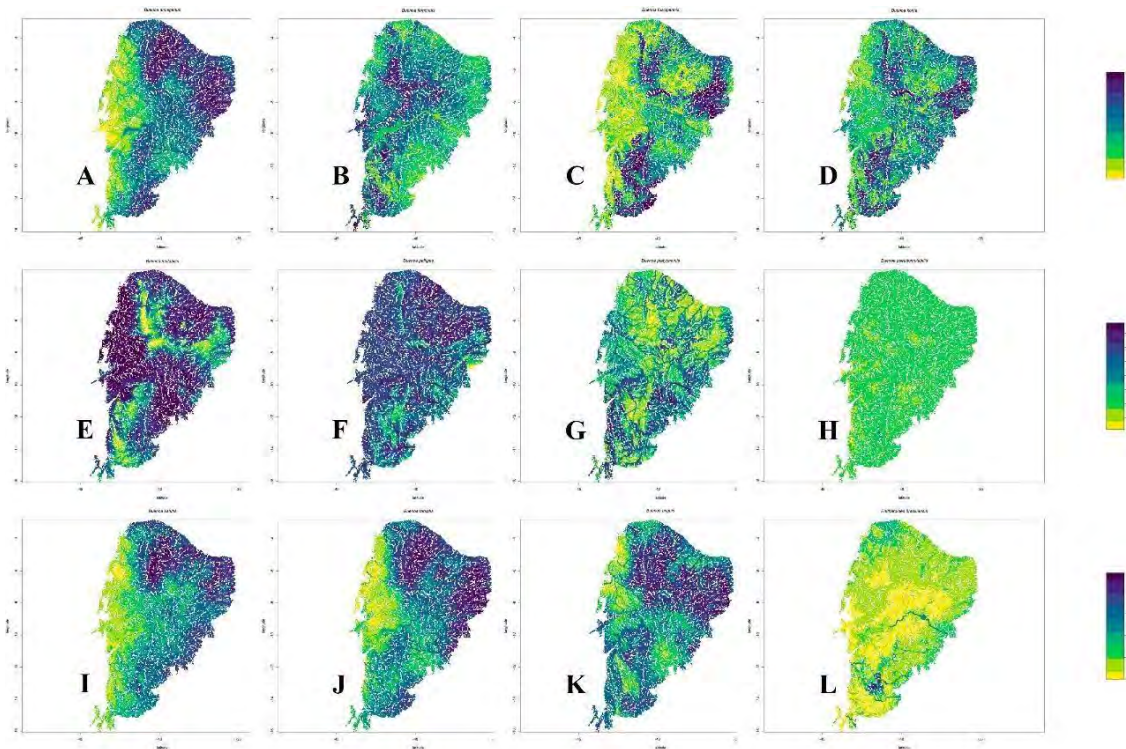
**Figura 6.13.** Mapas de adequabilidade para espécies de Gelastocoridae (A-C), Naucoridae (D-H) e Pleidae (I-J) com no mínimo quatro registros, algoritmo RDF. A: *Gelastocoris angulatus*; B: *G. f. flavus*; C: *Nerthra raptoria*; D: *Limnocoris pusillus*; E: *Maculambrysus stali*; F: *Pelocoris magister*; G: *P. magister*; H: *P. b. nigriculus*; I: *Neoplea maculosa*; J: *N. semipicta*.



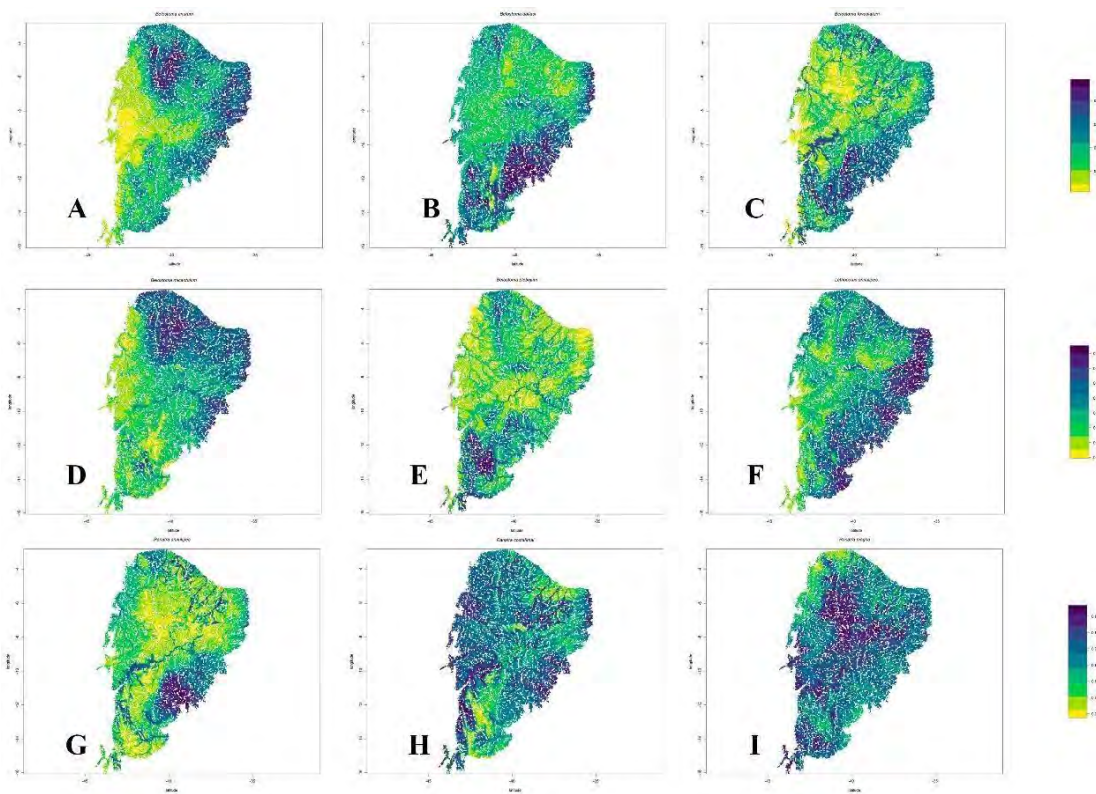
**Figura 6.14.** Mapas de adequabilidade para espécies de Corixoidea com no mínimo quatro registros, Corixidae (A-I) e Micronectidae (J) algoritmo RDF. A: *Centrocorisa kollari*; B: *Heterocorixa wrighti ollalai*; C: *H. w. wrighti*; D: *Sigara denseconscripta*; E: *S. denseconscriptoidea*; F: *Tenagobia incerta*.



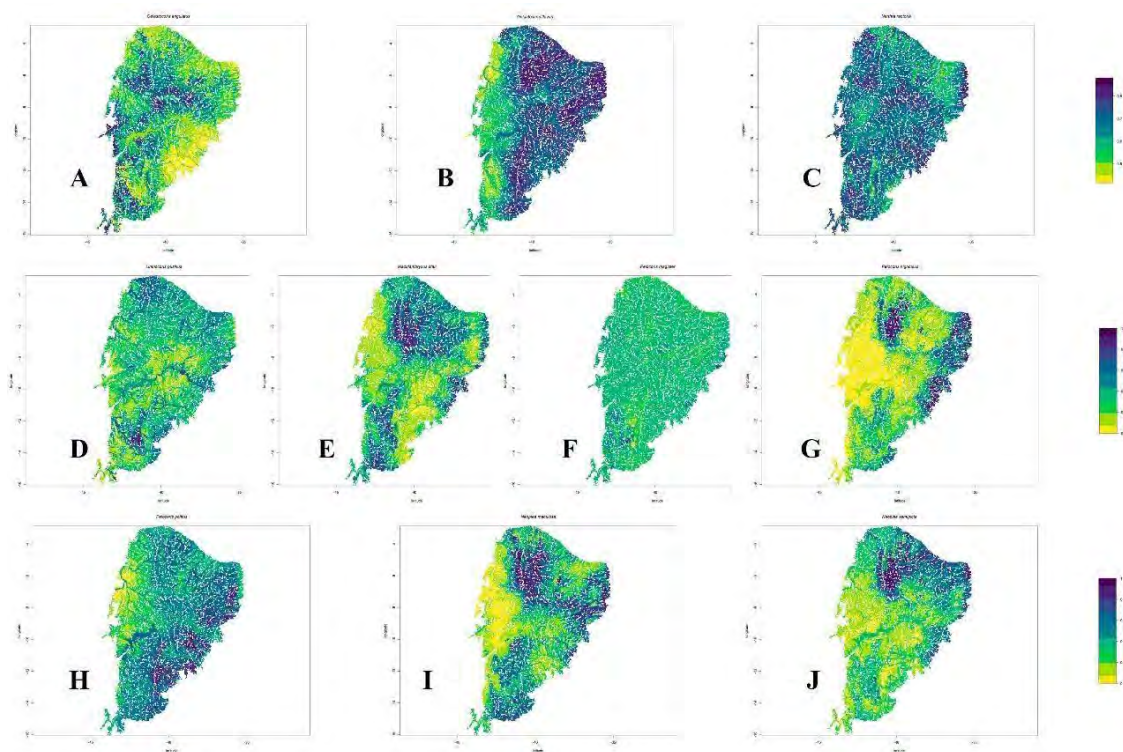
**Figura 6.15.** Mapas de adequabilidade para espécies de Notonectidae, subfamília Notonectinae, algoritmo RDF. A: *Martarega bentoi*; B: *M. brasiliensis*; C: *M. membranacea*; D: *Notonecta disturbata*.



**Figura 6.16.** Mapas de adequabilidade para espécies de Notonectidae com no mínimo quatro registros, algoritmo SVM. A: *Buenoa amnigenus*; B: *B. femoralis*; C: *B. fuscipennis*; D: *B. konta*; E: *B. mutabilis*; F: *B. pallipes*; G: *B. platycnemis*; H: *B. pseudomutabilis*; I: *B. salutis*; J: *B. tarsalis*; K: *B. unguis*; L: *Enitharoides brasiliensis*.

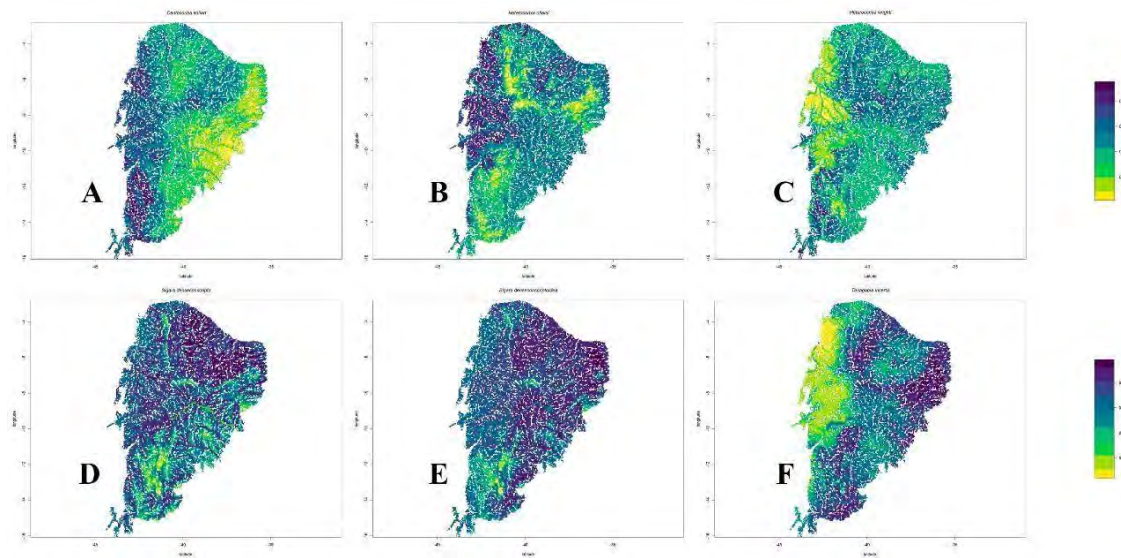


**Figura 6.17.** Mapas de adequabilidade para espécies de Nepoidea com no mínimo quatro registros, algoritmo SVM. A: *Belostoma anurum*; B: *B. dallasi*; C: *B. foveolatum*; D: *B. micantulum*; E: *B. plebejum*; F: *Lethocerus annulipes*; G: *Ranatra annulipes*; H: *R. costalimai*; I: *R. magna*.

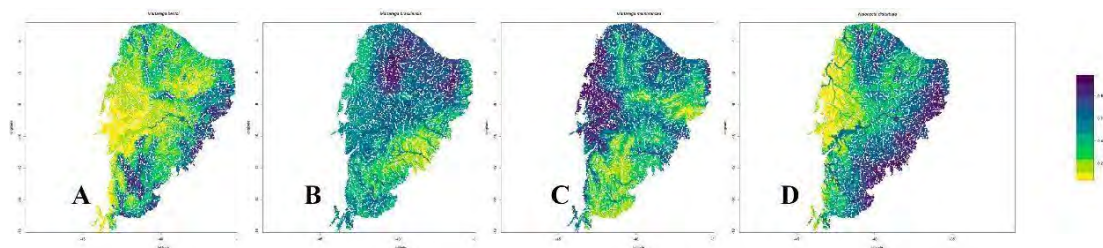


**Figura 6.18.** Mapas de adequabilidade para espécies de Gelastocoridae (A-C), Naucoridae (D-H) e Pleidae (I-J) com no mínimo quatro registros, algoritmo SVM. A: *Gelastocoris angulatus*; B: *G. f. flavus*; C: *G. f. flavus*; D: *Naucoris angulatus*; E: *Naucoris angulatus*; F: *Naucoris angulatus*; G: *Pleidus angulatus*; H: *Pleidus angulatus*; I: *Pleidus angulatus*; J: *Pleidus angulatus*.

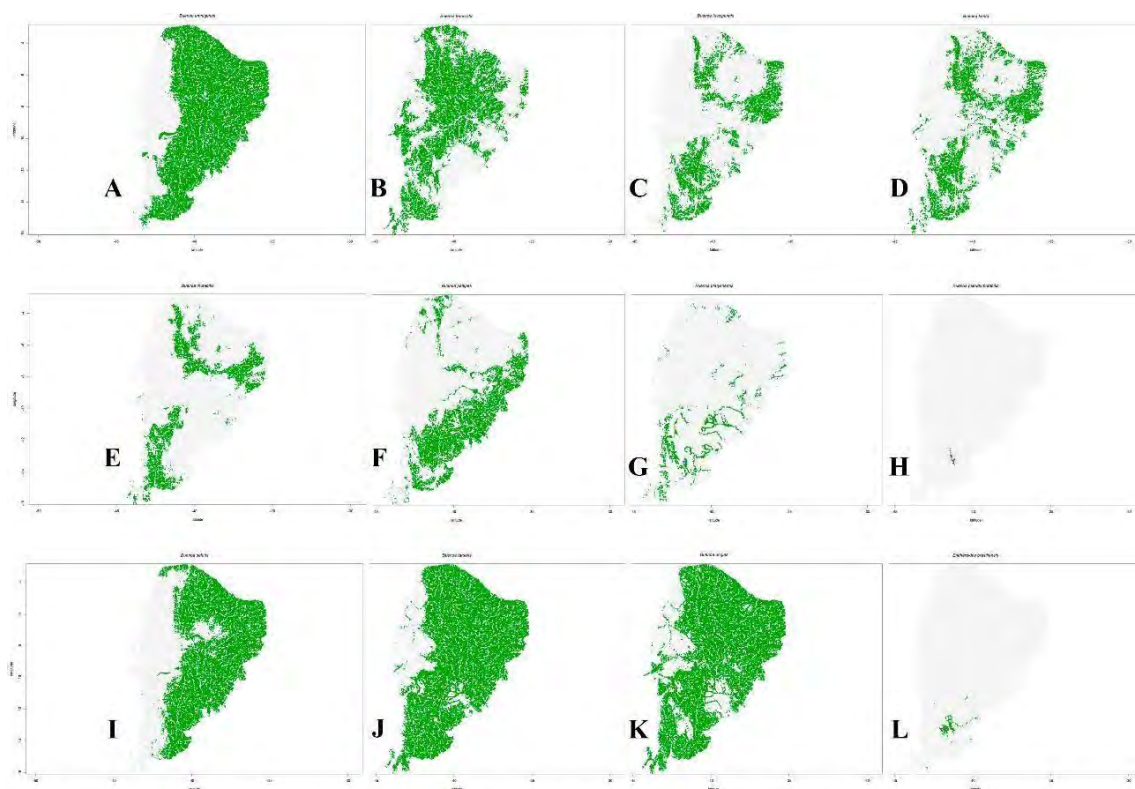
*Nerthra raptoria*; D: *Limnocoris pusillus*; E: *Maculambrysus stali*; F: *Pelocoris magister*; G: *P. magister*; H: *P. b. nigriculus*; I: *Neoplea maculosa*; J: *N. semipicta*.



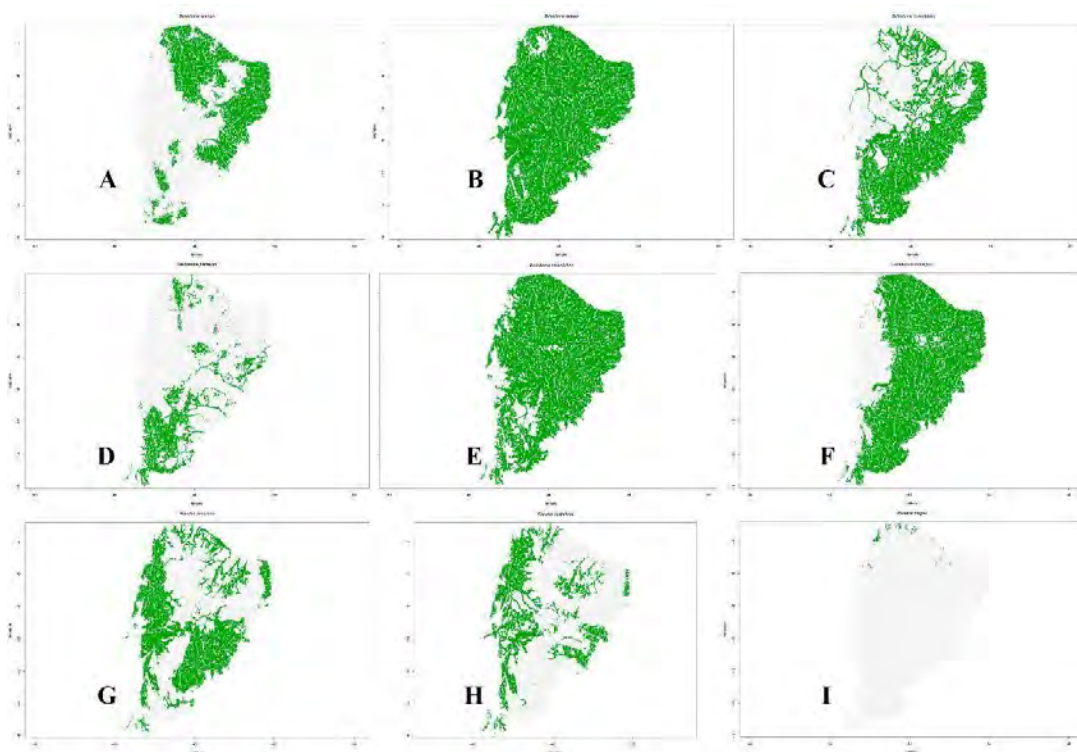
**Figura 6.19.** Mapas de adequabilidade para espécies de Corixoidea com no mínimo quatro registros, Corixidae (A-I) e Micronectidae (J) algoritmo RDF. A: *Centrocorisa kollari*; B: *Heterocorixa wrighti ollalai*; C: *H. w. wrighti*; D: *Sigara denseconscripta*; E: *S. denseconscriptoidea*; F: *Tenagobia incerta*.



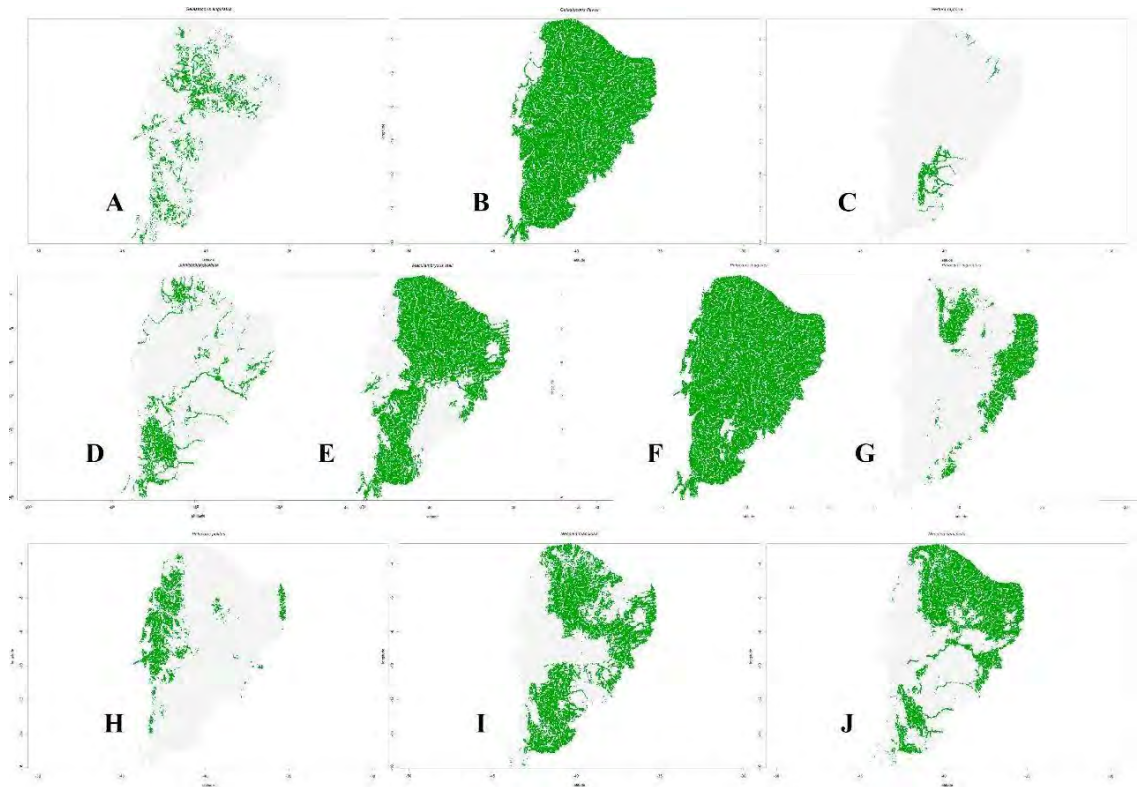
**Figura 6.20.** Mapas de adequabilidade para espécies de Notonectidae, subfamília Notonectinae, algoritmo SVM. A: *Martarega bentoi*; B: *M. brasiliensis*; C: *M. membranacea*; D: *Notonecta disturbata*.



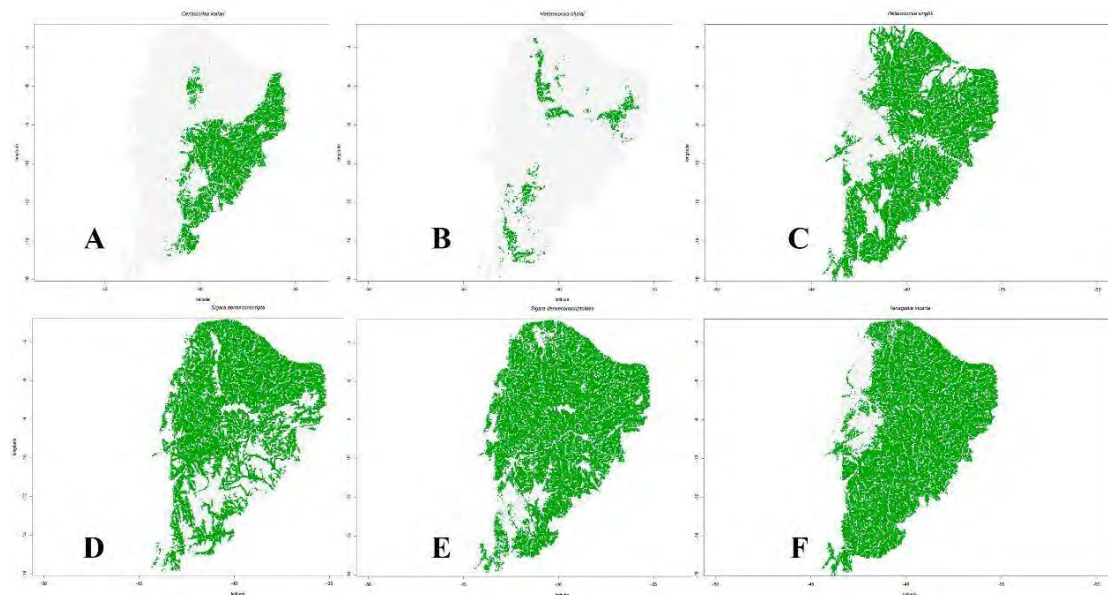
**Figura 6.21.** Mapas de distribuição potencial para espécies de Notonectidae com no mínimo quatro registros, algoritmo GAU. A: *Buenoa amnigenus*; B: *B. femoralis*; C: *B. fuscipennis*; D: *B. konta*; E: *B. mutabilis*; F: *B. pallipes*; G: *B. platycnemis*; H: *B. pseudomutabilis*; I: *B. salutis*; J: *B. tarsalis*; K: *B. unguis*; L: *Enitharoides brasiliensis*.



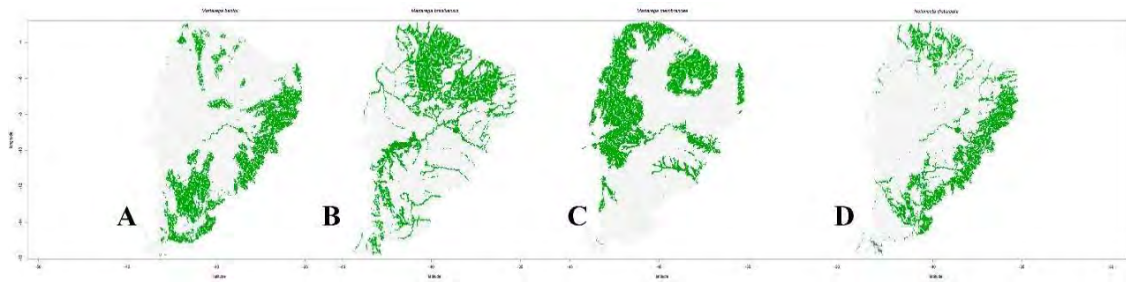
**Figura 6.22.** Mapas de distribuição potencial para espécies de Nepoidea com no mínimo quatro registros, algoritmo GAU. A: *Belostoma anurum*; B: *B. dallasi*; C: *B. foveolatum*; D: *B. micantulum*; E: *B. plebejum*; F: *Lethocerus annulipes*; G: *Ranatra annulipes*; H: *R. costalimai*; I: *R. magna*.



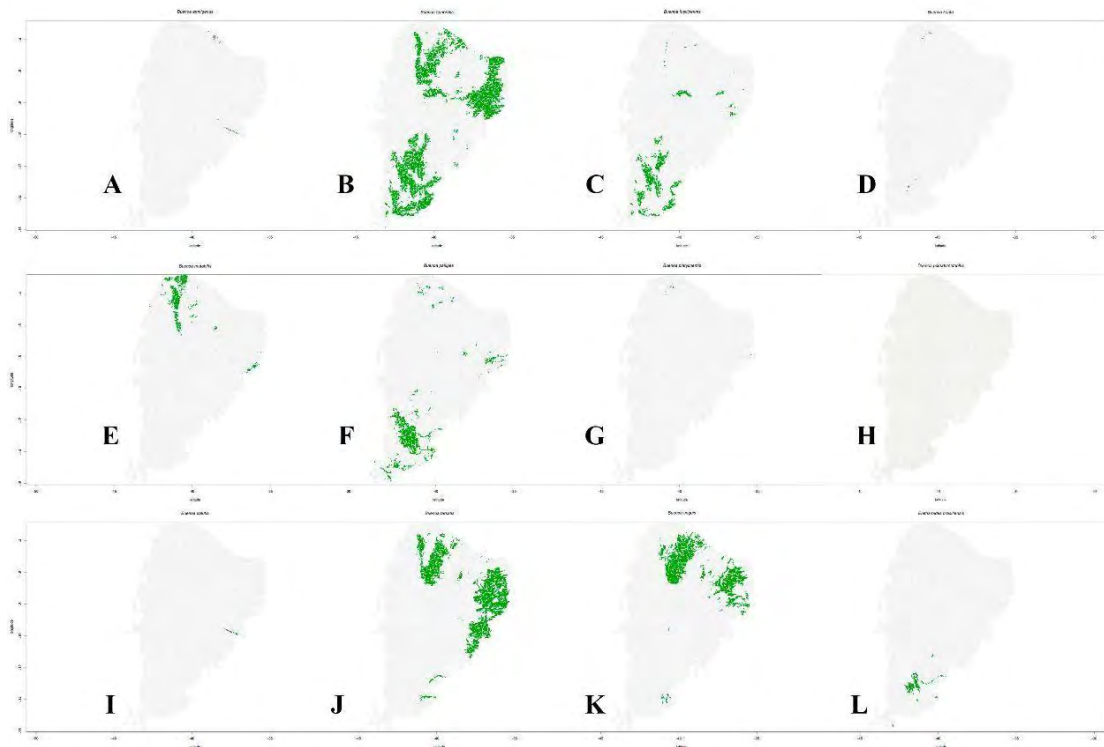
**Figura 6.23.** Mapas de distribuição potencial para espécies de Gelastocoridae (A-C), Naucoridae (D-H) e Pleidae (I-J) com no mínimo quatro registros, algoritmo GAU. A: *Gelastocoris angulatus*; B: *G. f. flavus*; C: *Nerthra raptoria*; D: *Limnocoris pusillus*; E: *Maculambrysus stali*; F: *Pelocoris magister*; G: *P. magister*; H: *P. b. nigriculus*; I: *Neoplea maculosa*; J: *N. semipicta*.



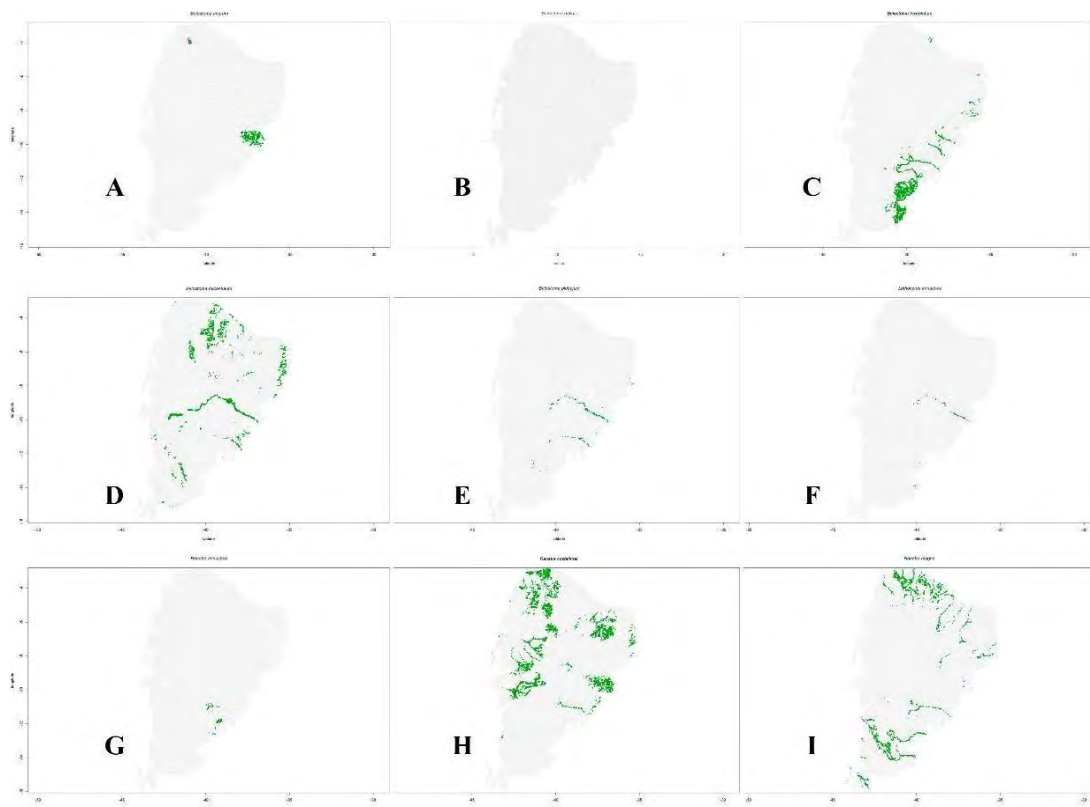
**Figura 6.24.** Mapas de distribuição potencial para espécies de Corixoidea com no mínimo quatro registros, Corixidae (A-I) e Micronectidae (J) algoritmo GAU. A: *Centrocorisa kollari*; B: *Heterocorixa wrighti ollalai*; C: *H. w. wrighti*; D: *Sigara denseconscripta*; E: *S. denseconscriptoidea*; F: *Tenagobia incerta*.



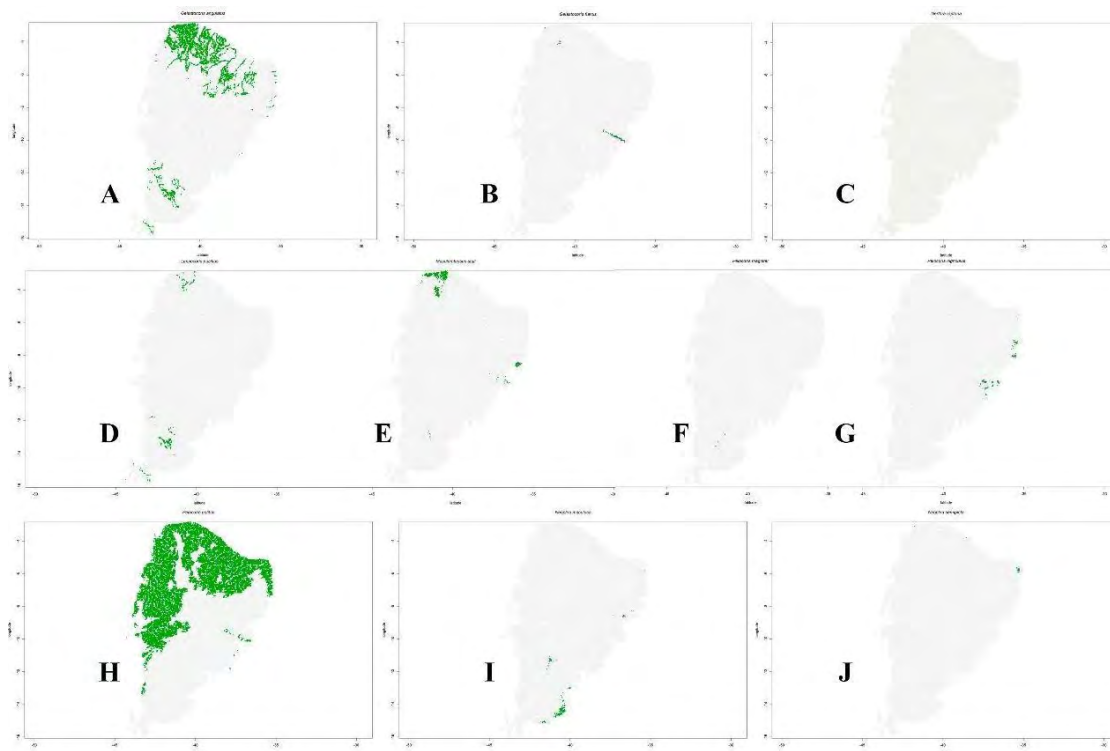
**Figura 6.25.** Mapas de distribuição potencial para espécies de Notonectidae, subfamília Notonectinae, algoritmo GAU. A: *Martarega bentoi*; B: *M. brasiliensis*; C: *M. membranacea*; D: *Notonecta disturbata*.



**Figura 6.26.** Mapas de distribuição potencial para espécies de Notonectidae com no mínimo quatro registros, algoritmo MXD. A: *Buenoa amnigenus*; B: *B. femoralis*; C: *B. fuscipennis*; D: *B. konta*; E: *B. mutabilis*; F: *B. pallipes*; G: *B. platycnemis*; H: *B. pseudomutabilis*; I: *B. salutis*; J: *B. tarsalis*; K: *B. unguis*; L: *Enitharoides brasiliensis*.

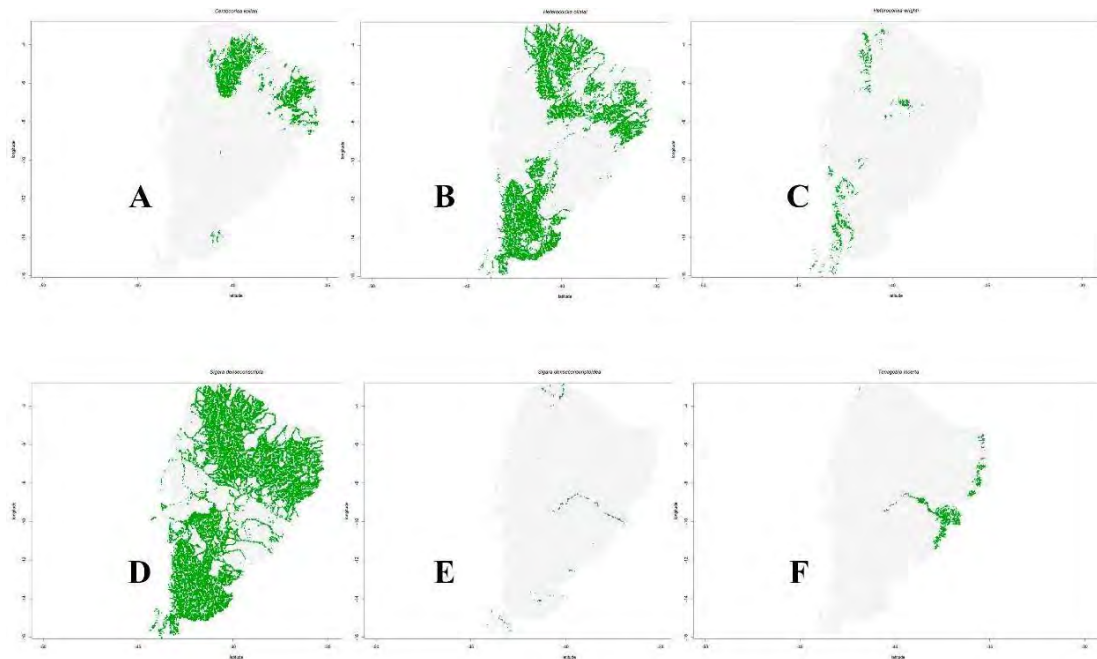


**Figura 6.27.** Mapas de distribuição potencial para espécies de Nepoidea com no mínimo quatro registros, algoritmo MXD. A: *Belostoma anurum*; B: *B. dallasi*; C: *B. foveolatum*; D: *B. micantulum*; E: *B. plebejum*; F: *Lethocerus annulipes*; G: *Ranatra annulipes*; H: *R. costalimai*; I: *R. magna*.

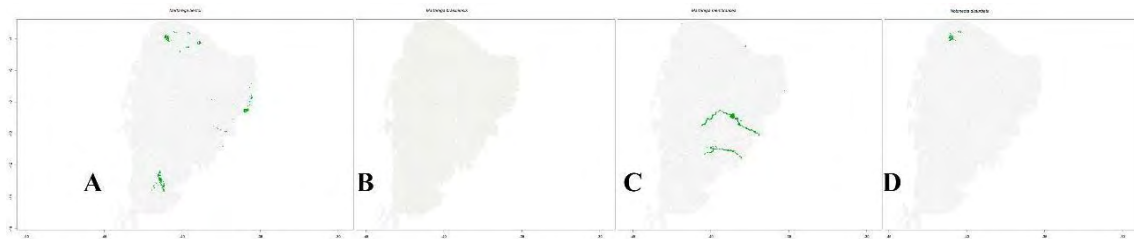


**Figura 6.28.** Mapas de distribuição potencial para espécies de Gelastocoridae (A-C), Naucoridae (D-H) e Pleidae (I-J) como mínimo quatro registros, algoritmo MXD. A: *Gelastocoris angulatus*; B: *G. f. flavus*;

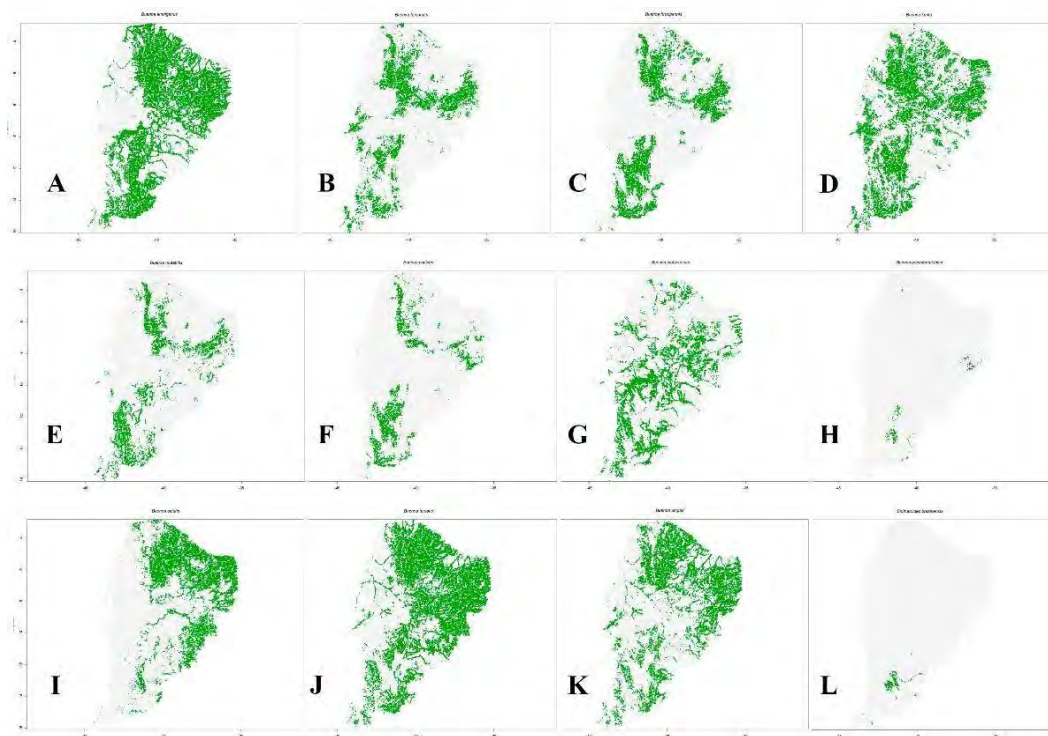
C: *Nerthra raptoria*; D: *Limnocoris pusillus*; E: *Maculambrysus stali*; F: *Pelocoris magister*; G: *P. magister*; H: *P. b. nigriculus*; I: *Neoplea maculosa*; J: *N. semipicta*.



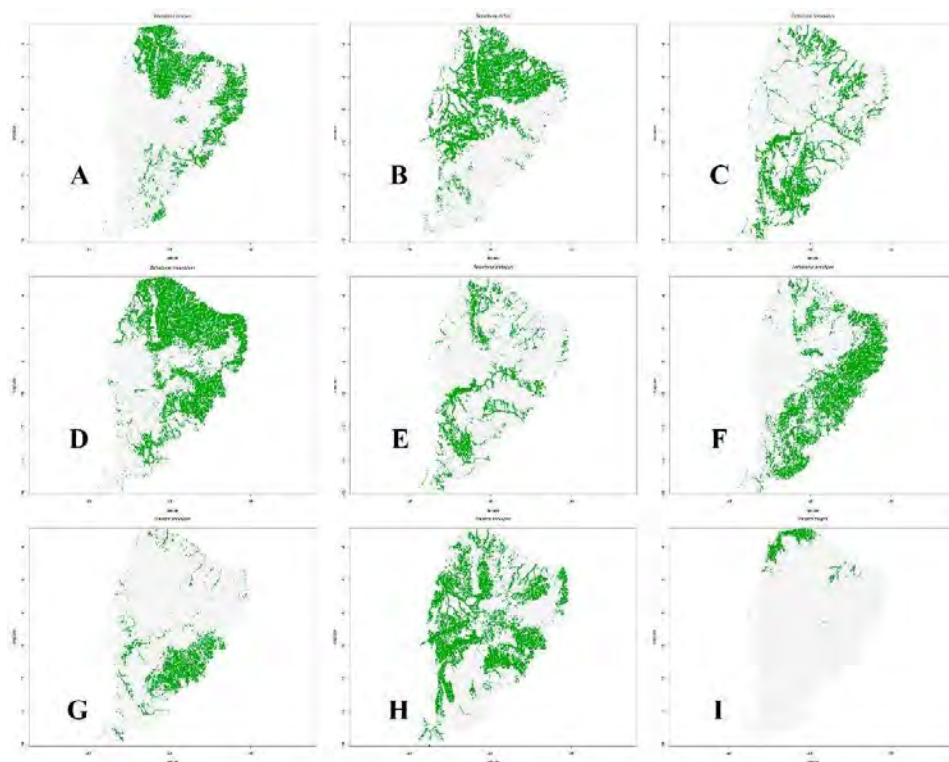
**Figura 6.29.** Mapas de distribuição potencial para espécies de Corixoidea com no mínimo quatro registros, Corixidae (A-I) e Micronectidae (J) algoritmo MXD. A: *Centrocorisa kollari*; B: *Heterocorixa wrighti* *ollalai*; C: *H. w. wrighti*; D: *Sigara denseconscripta*; E: *S. denseconscriptoidea*; F: *Tenagobia incerta*.



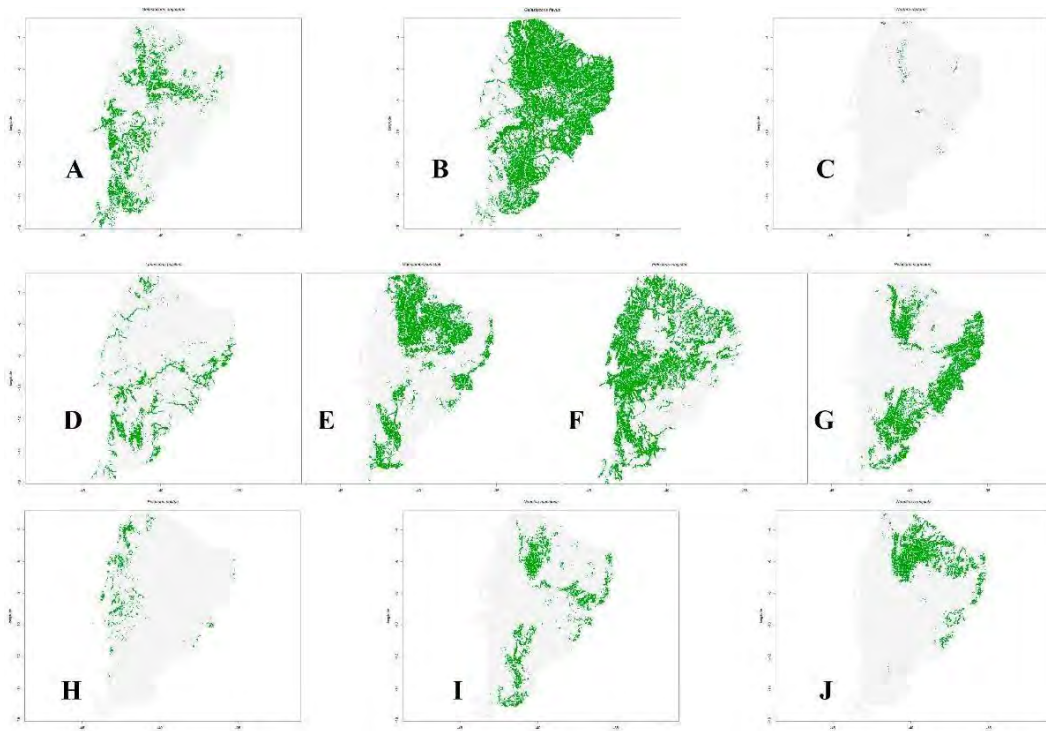
**Figura 6.30.** Mapas de distribuição potencial para espécies de Notonectidae, subfamília Notonectinae, algoritmo MXD. A: *Martaregabentoi*; B: *M. brasiliensis*; C: *M. membranacea*; D: *Notonecta disturbata*.



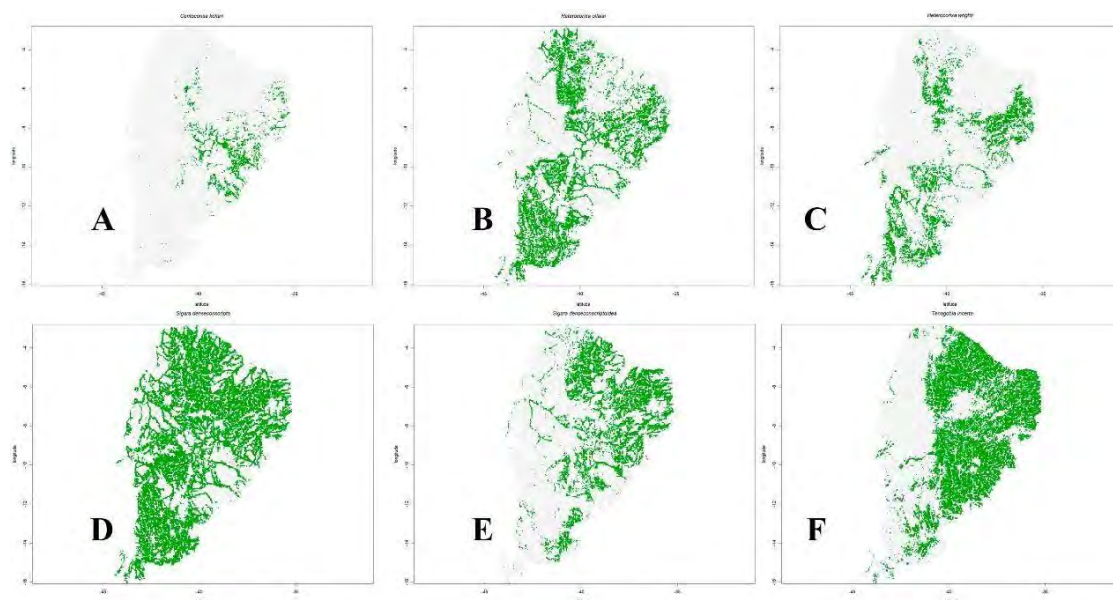
**Figura 6.31.** Mapas de distribuição potencial para espécies de Notonectidae com no mínimo quatro registros, algoritmo RDF. A: *Buenoa amnigenus*; B: *B. femoralis*; C: *B. fuscipennis*; D: *B. konta*; E: *B. mutabilis*; F: *B. pallipes*; G: *B. platycnemis*; H: *B. pseudomutabilis*; I: *B. salutis*; J: *B. tarsalis*; K: *B. unguis*; L: *Enitharoides brasiliensis*.



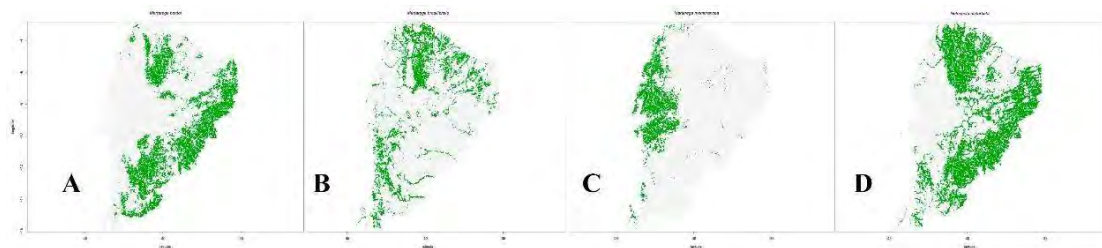
**Figura 6.32.** Mapas de distribuição potencial para espécies de Nepoidea com no mínimo quatro registros, algoritmo RDF. A: *Belostoma anurum*; B: *B. dallasi*; C: *B. foveolatum*; D: *B. micantulum*; E: *B. plebejum*; F: *Lethocerus annulipes*; G: *Ranatra annulipes*; H: *R. costalimai*; I: *R. magna*.



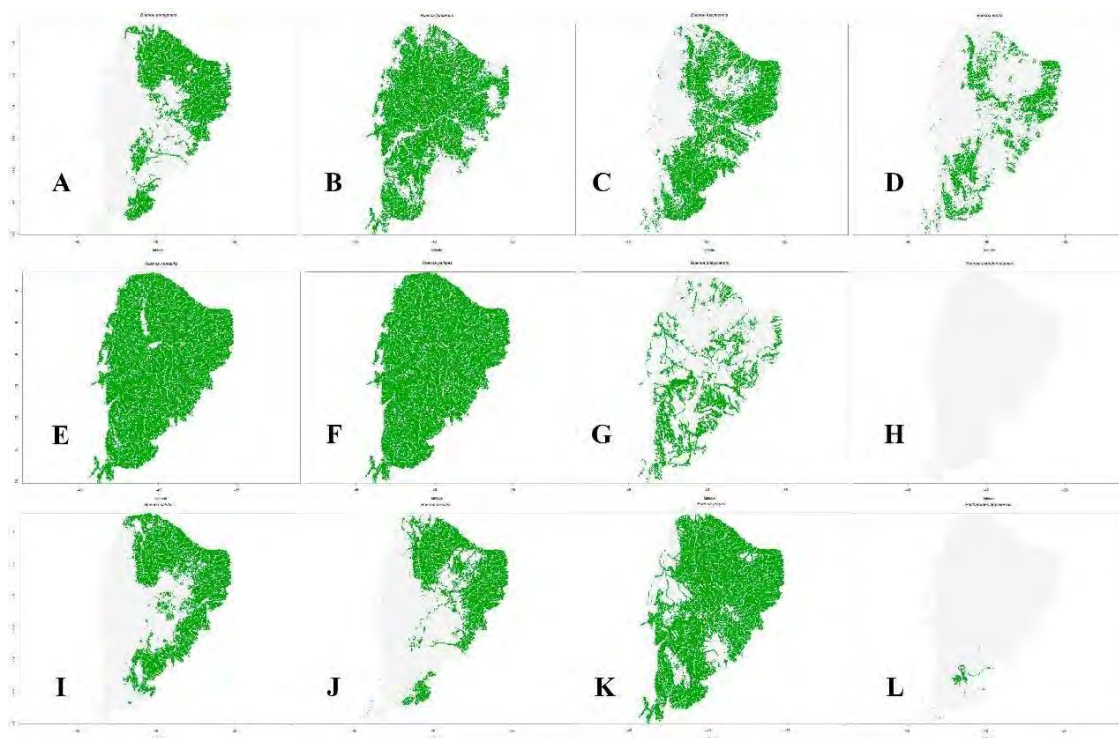
**Figura 6.33.** Mapas de distribuição potencial para espécies de Gelastocoridae (A-C), Naucoridae (D-H) e Pleidae (I-J) com no mínimo quatro registros, algoritmo RDF. A: *Gelastocoris angulatus*; B: *G. f. flavus*; C: *Nerthra raptoria*; D: *Limnocoris pusillus*; E: *Maculambrysus stali*; F: *Pelocoris magister*; G: *P. magister*; H: *P. b. nigriculus*; I: *Neoplea maculosa*; J: *N. semipicta*.



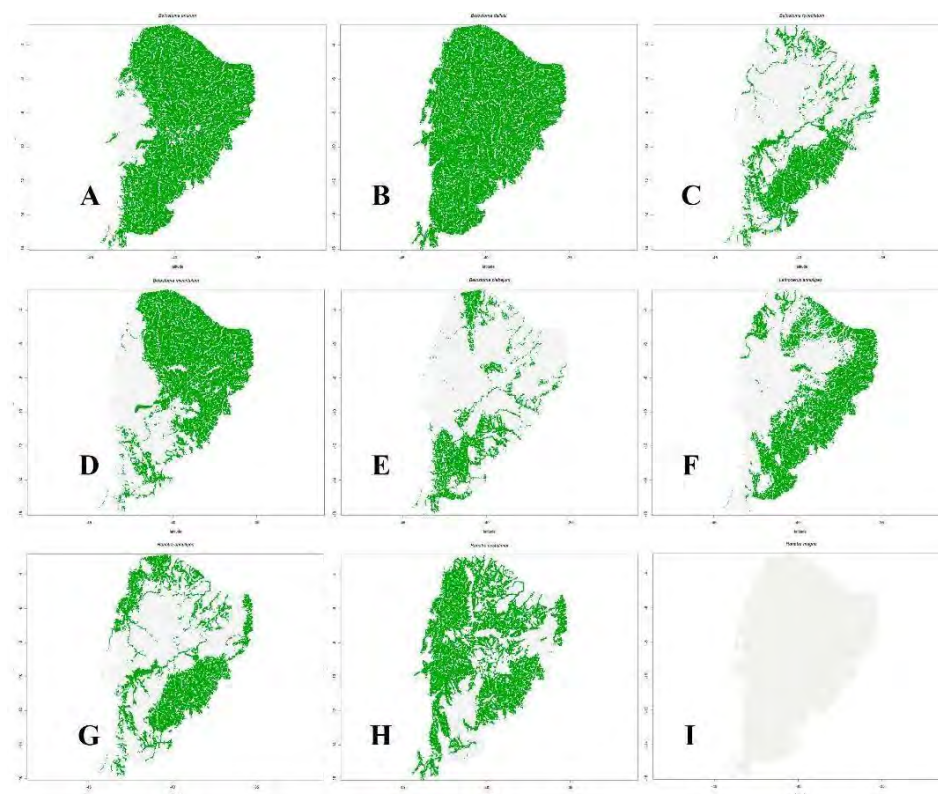
**Figura 6.34.** Mapas de distribuição potencial para espécies de Corixoidea com no mínimo quatro registros, Corixidae (A-I) e Micronectidae (J) algoritmo RDF. A: *Centrocorisa kollari*; B: *Heterocorixa wrighti*; C: *H. w. wrighti*; D: *Sigara denseconscripta*; E: *S. denseconscriptoidea*; F: *Tenagobia incerta*.



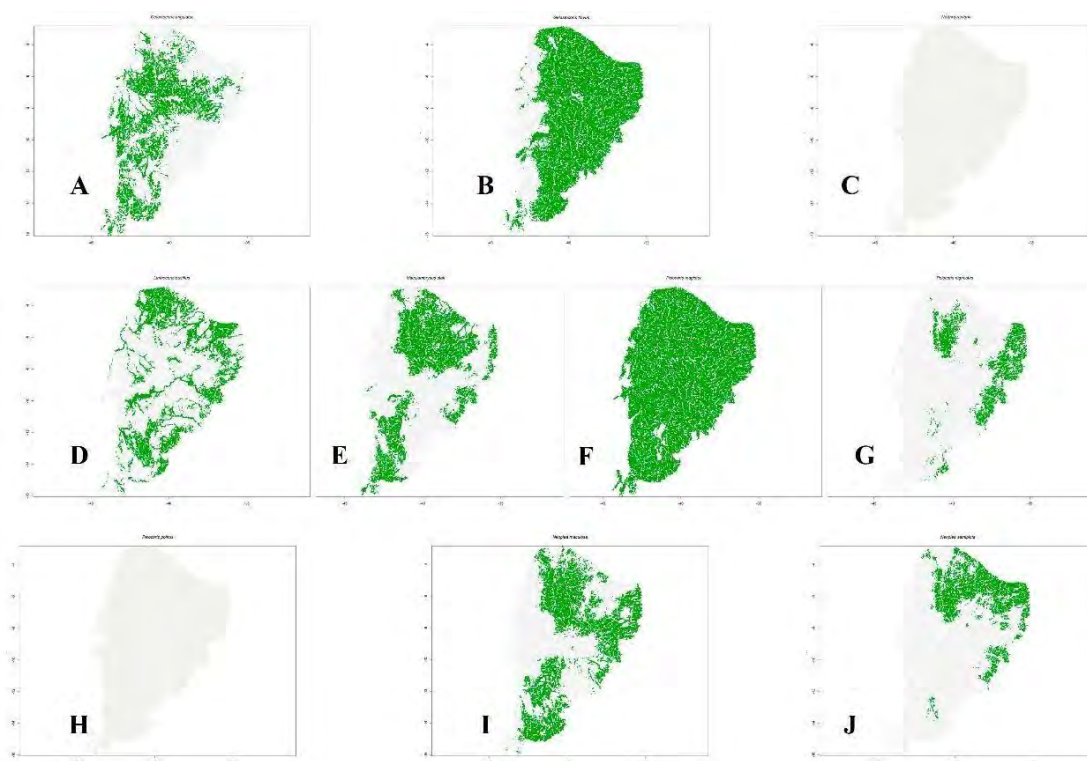
**Figura 6.35.** Mapas de distribuição potencial para espécies de Notonectidae, subfamília Notonectinae, algoritmo RDF. A: *Martarega bento*; B: *M. brasiliensis*; C: *M. membranacea*; D: *Notonecta disturbata*.



**Figura 6.36.** Mapas de distribuição potencial para espécies de Notonectidae com no mínimo quatro registros, algoritmo SVM. A: *Buenoa amnigenus*; B: *B. femoralis*; C: *B. fuscipennis*; D: *B. konta*; E: *B. mutabilis*; F: *B. pallipes*; G: *B. platycnemis*; H: *B. pseudomutabilis*; I: *B. salutis*; J: *B. tarsalis*; K: *B. unguis*; L: *Enitharoides brasiliensis*.

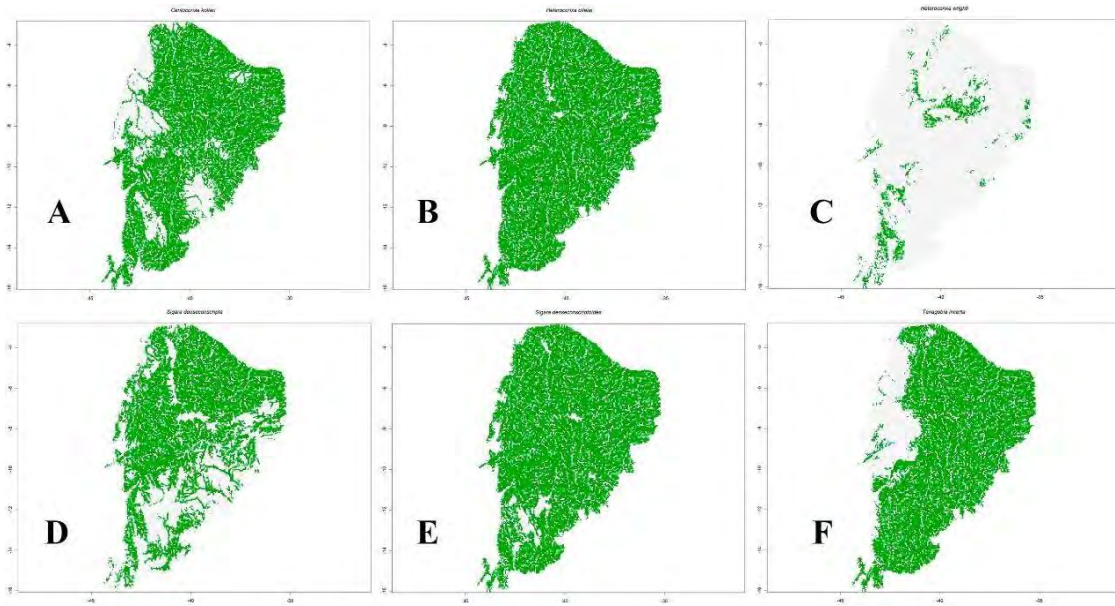


**Figura 6.37.** Mapas de distribuição potencial para espécies de Nepoidea com no mínimo quatro registros, algoritmo SVM. A: *Belostoma anurum*; B: *B. dallasi*; C: *B. foveolatum*; D: *B. micantulum*; E: *B. plebejum*; F: *Lethocerus annulipes*; G: *Ranatra annulipes*; H: *R. costalimai*; I: *R. magna*.

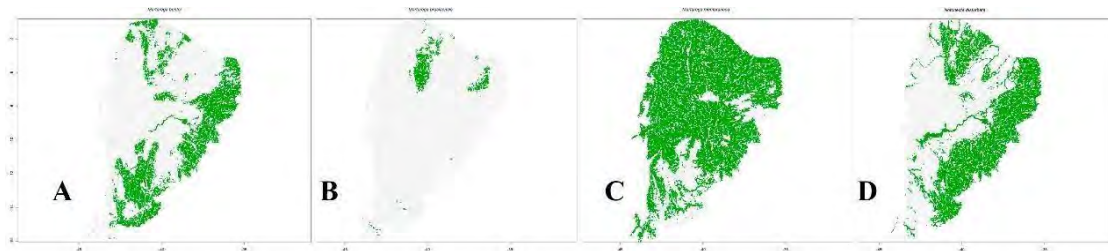


**Figura 6.38.** Mapas de distribuição potencial para espécies de Gelastocoridae (A-C), Naucoridae (D-H) e Pleidae (I-J) com no mínimo quatro registros, algoritmo RDF. A: *Gelastocoris angulatus*; B: *G. f. flavus*;

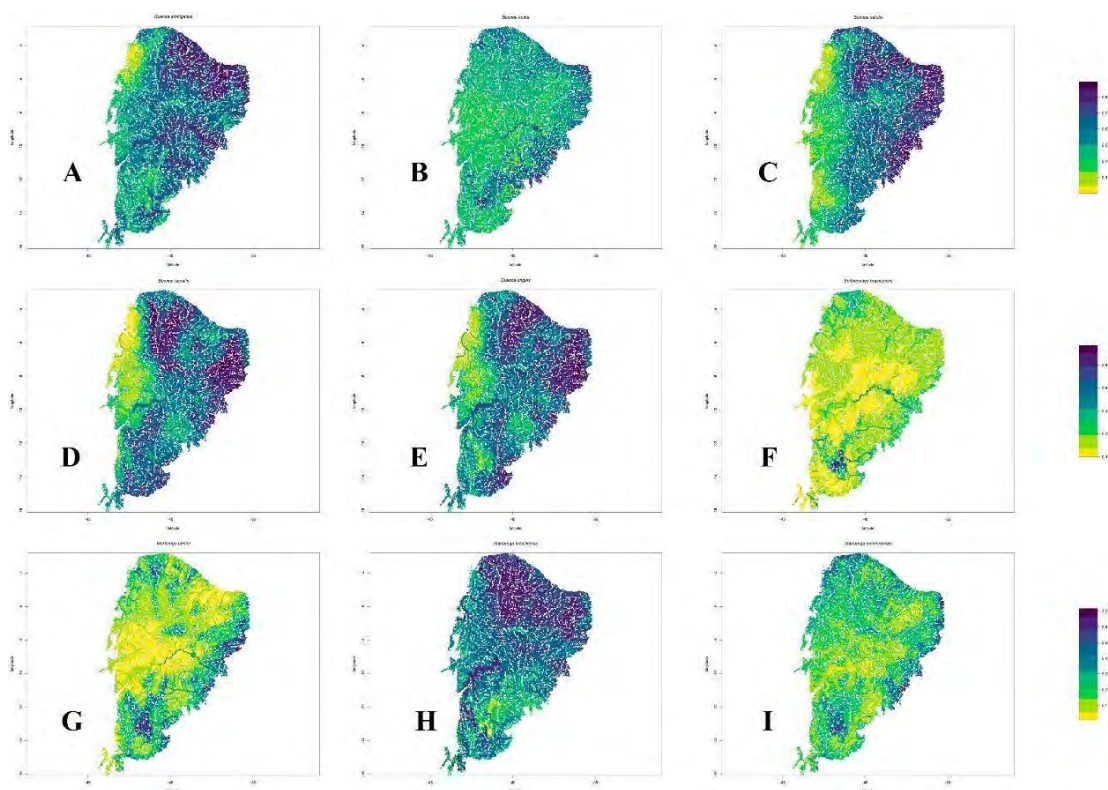
C: *Nerthra raptoria*; D: *Limnocoris pusillus*; E: *Maculambrysus stali*; F: *Pelocoris magister*; G: *P. magister*; H: *P. b. nigriculus*; I: *Neoplea maculosa*; J: *N. semipicta*.



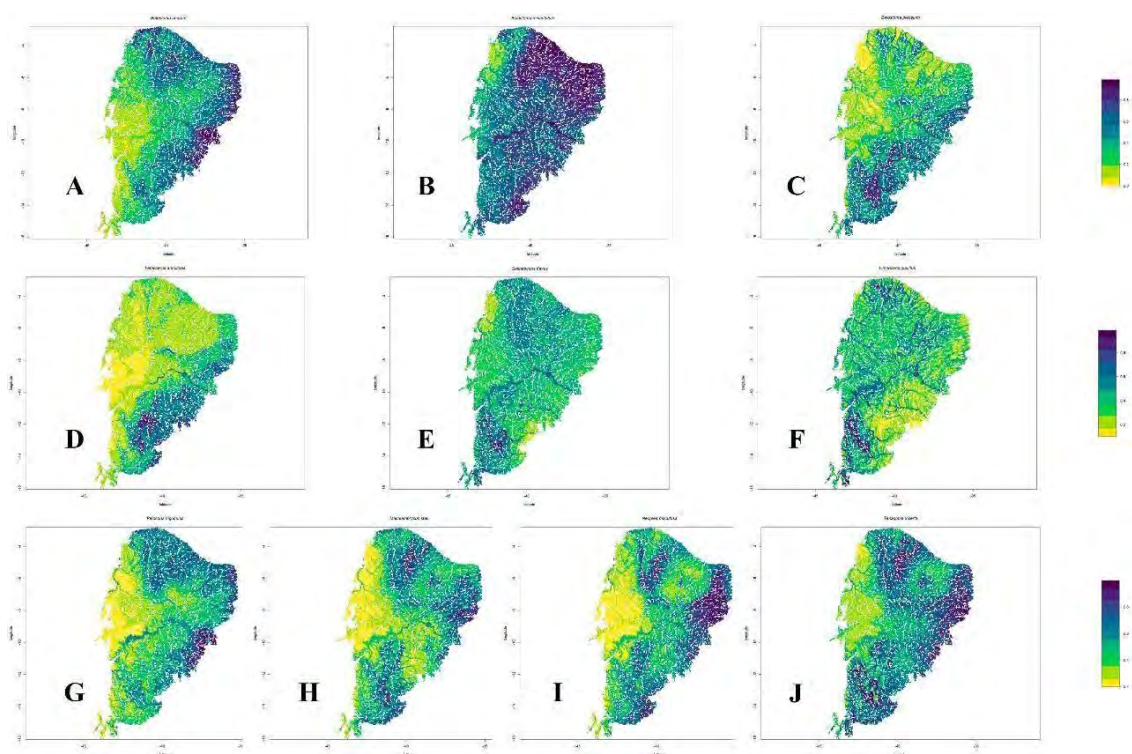
**Figura 6.39.** Mapas de distribuição potencial para espécies de Corixoidea com no mínimo quatro registros, Corixidae (A-I) e Micronectidae (J) algoritmo SVM. A: *Centrocorisa kollari*; B: *Heterocorixa wrighti* ollalai; C: *H. w. wrighti*; D: *Sigara denseconscripta*; E: *S. denseconscriptoidea*; F: *Tenagobia incerta*.



**Figura 6.40.** Mapas de distribuição potencial para espécies de Notonectidae, subfamília Notonectinae, algoritmo SVM. A: *Martarega bentoi*; B: *M. brasiliensis*; C: *M. membranacea*; D: *Notonecta disturbata*.

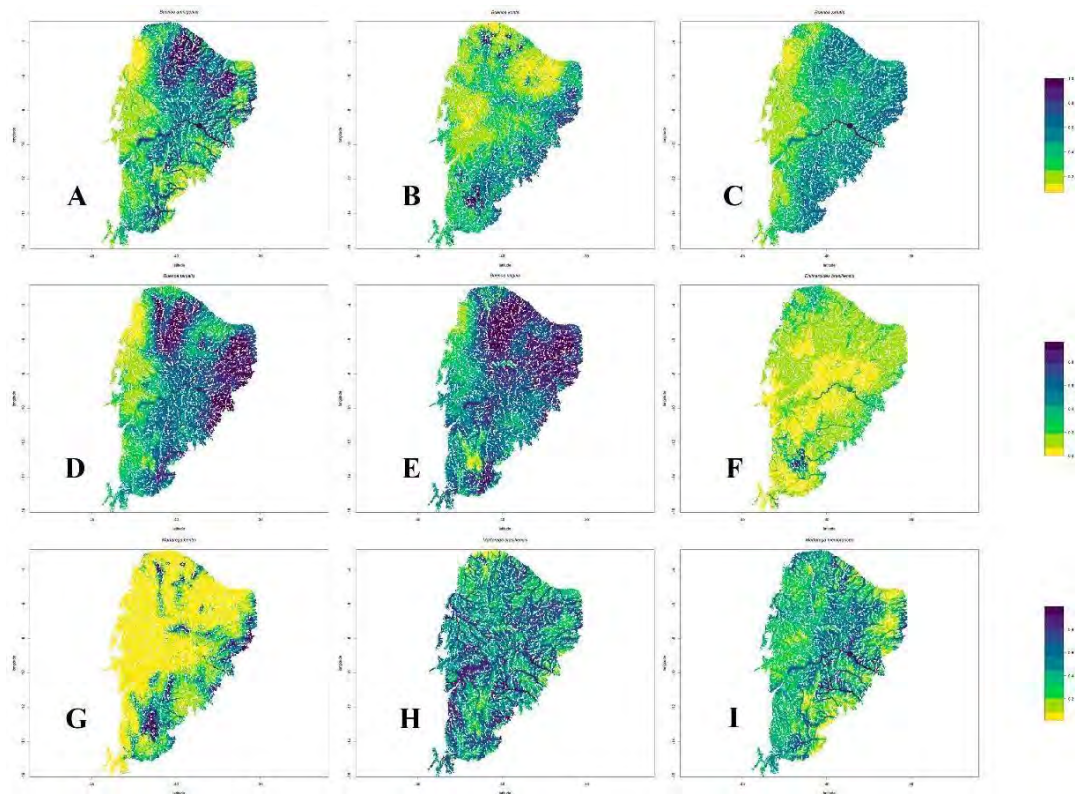


**Figura 6.41.** Mapas de adequabilidade para espécies de Nepomorpha com no mínimo vinte registros, algoritmo GAU, Notonectidae, subfamílias Anisopinae (A-F) e Notonectinae (F-I). A: *Buenoa amnigenus*; B: *B. kosta*; C: *B. salutaris*; D: *B. tarsalis*; E: *B. unguis*; F: *Enitharoides brasiliensis*; G: *Martarega bentoi*; H: *M. brasiliensis*; I: *M. membranacea*.

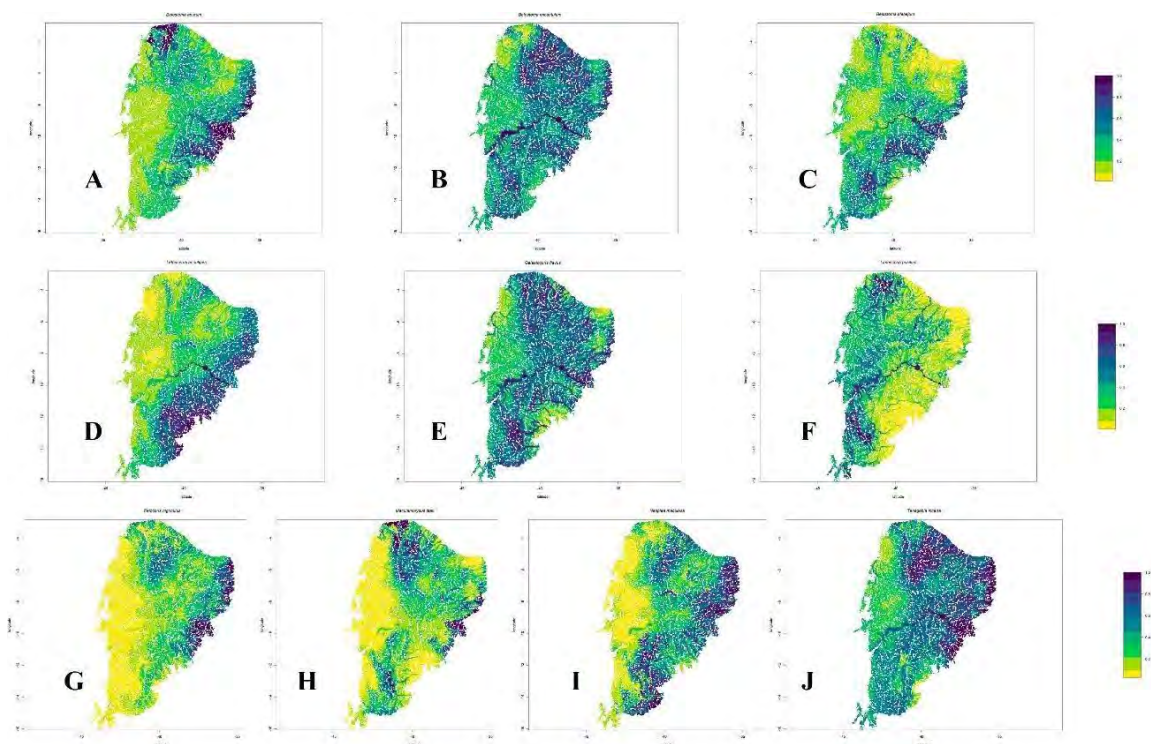


**Figura 6.42.** Mapas de adequabilidade para espécies de Nepomorpha com no mínimo vinte registros, algoritmo GAU, Belostomatidae (A-D), Gelastocoridae (E), Naucoridae (F-H), Pleidae (I) e Micronectidae

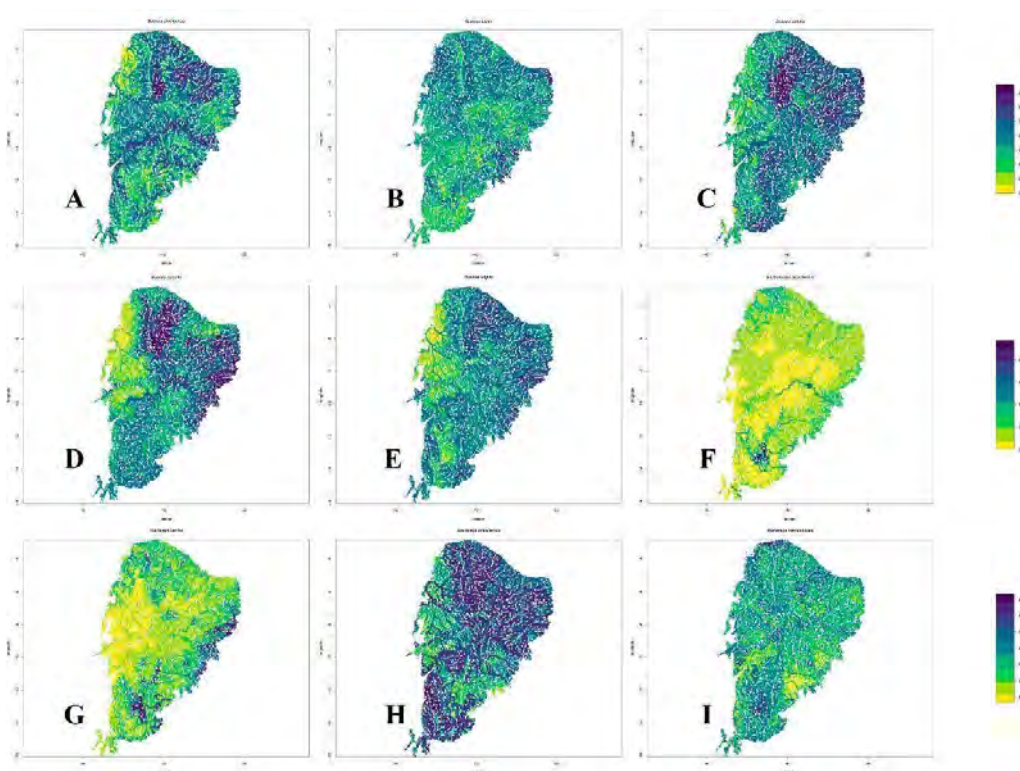
(J). A: *Belostoma anurum*; B: *B. micantulum*; C: *B. plebejum*; D: *Lethocerus annulipes*; E: *Gelastocoris flavus*; F: *Limnocoris pusillus*; G: *P. b. nigriculus* ; H: *Maculambrysus stali*; I: *Neoplea maculosa*; J: *Tenagobia incerta*.



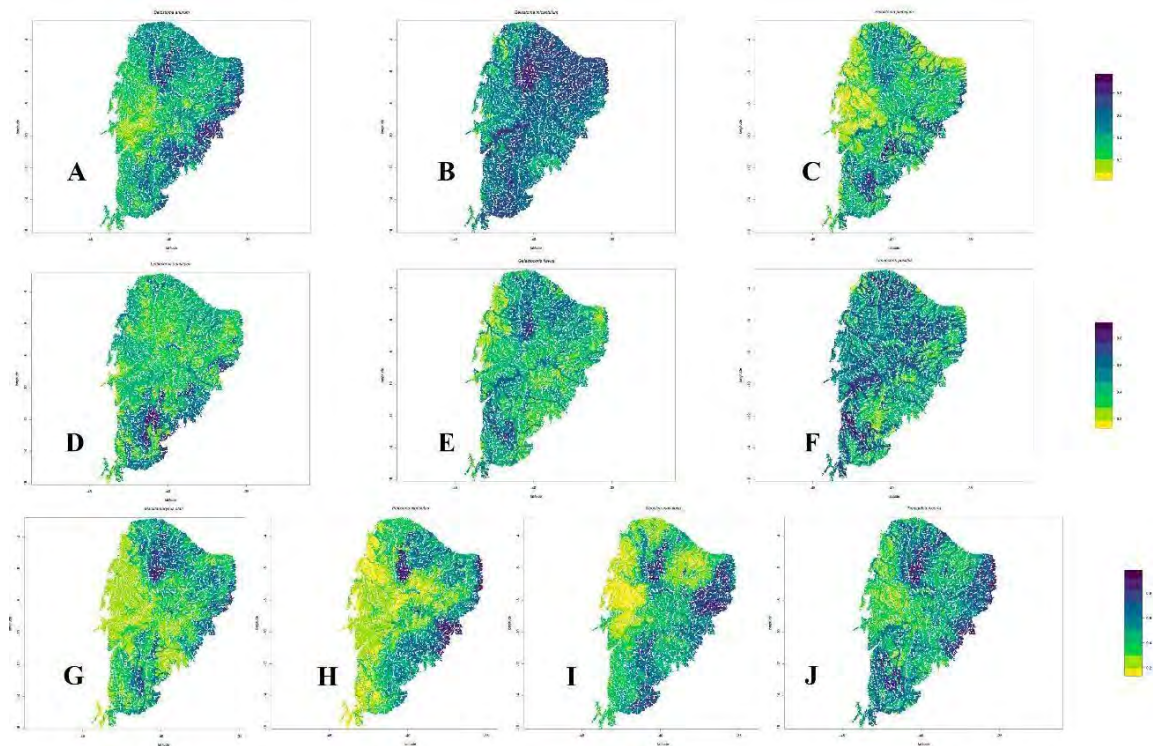
**Figura 6.43.** Mapas de adequabilidade para espécies de Nepomorpha com no mínimo vinte registros, algoritmo MXD, Notonectidae, subfamílias Anisopinae (A-F) e Notonectinae (F-I). A: *Buenoa amnigenus*; B: *B. konta*; C: *B. salutis*; D: *B. tarsalis*; E: *B. unguis*; F: *Enitharoides brasiliensis*; G: *Martarega bentoi*; H: *M. brasiliensis*; I: *M. membranacea*.



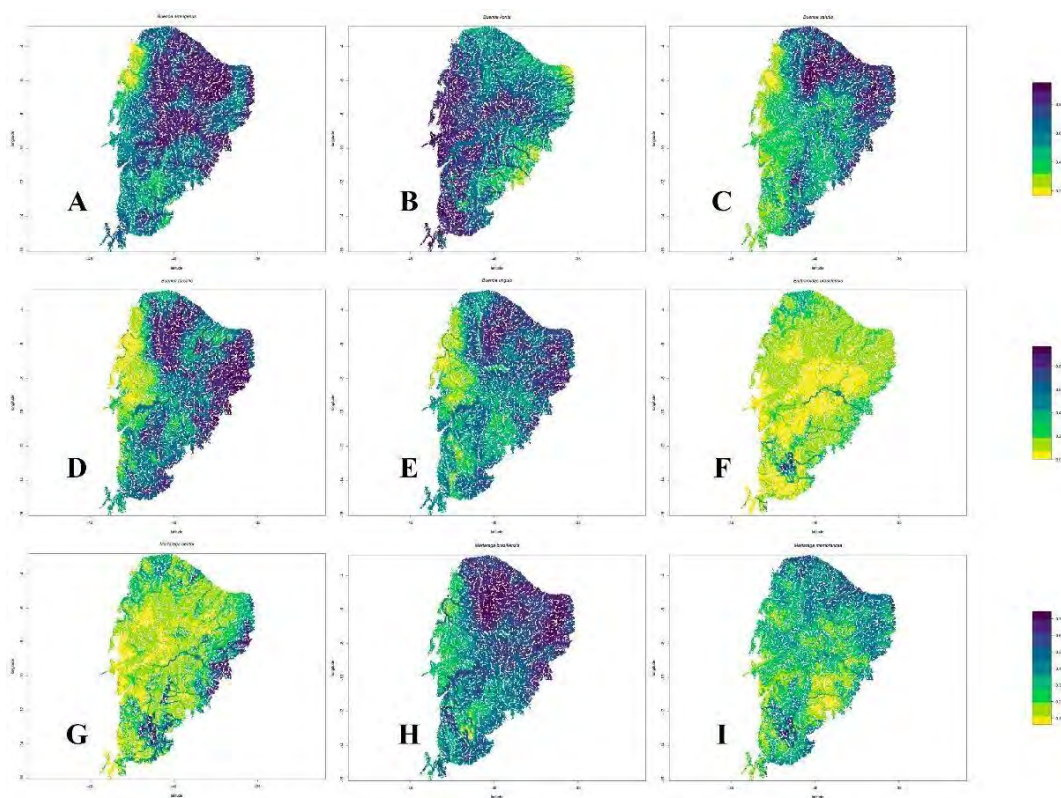
**Figura 6.44.** Mapas de adequabilidade para espécies de Nepomorpha com no mínimo vinte registros, algoritmo MXD, Belostomatidae (A-D), Gelastocoridae (E), Naucoridae (F-H), Pleidae (I) e Micronectidae (J). A: *Belostoma anurum*; B: *B. micantulum*; C: *B. plebejum*; D: *Lethocerus annulipes*; E: *Gelastocoris f. flavus*; F: *Limnocoris pusillus*; G: *P. b. nigriculus*; H: *Maculambrysus stali*; I: *Neoplea maculosa*; J: *Tenagobia incerta*.



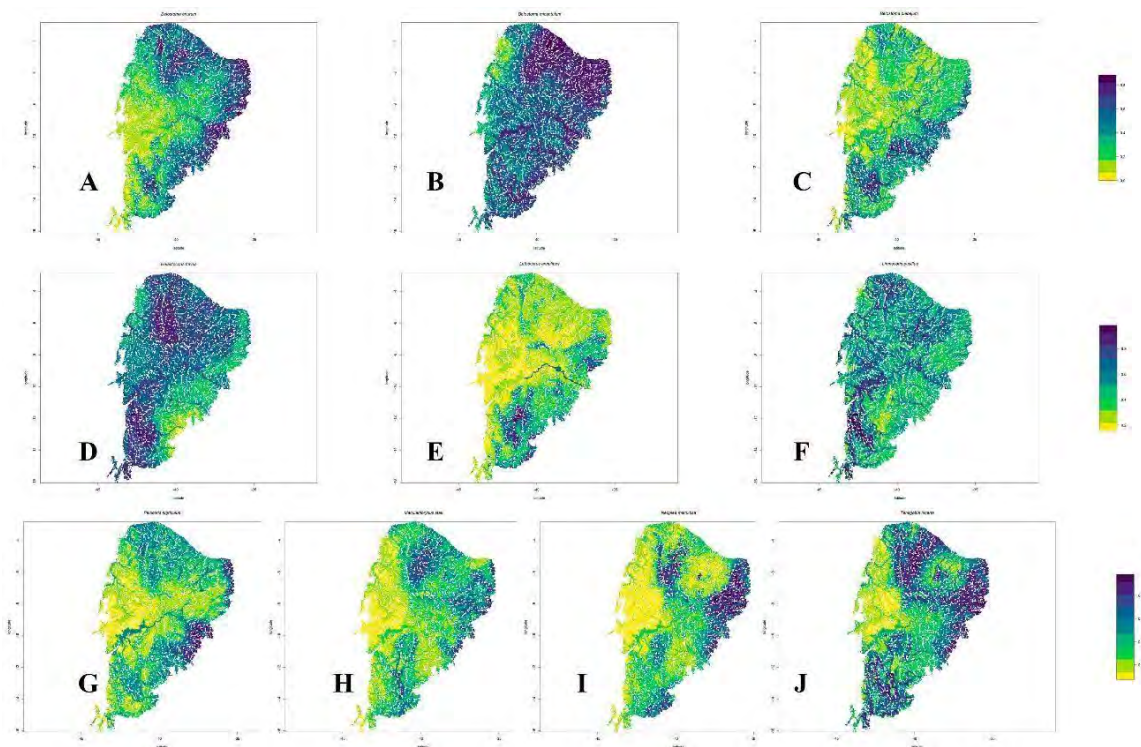
**Figura 6.45.** Mapas de adequabilidade para espécies de Nepomorpha com no mínimo vinte registros, algoritmo RDF, Notonectidae, subfamílias Anisopinae (A-F) e Notonectinae (F-I). A: *Buenoa amnigenus*; B: *B. konta*; C: *B. salutaris*; D: *B. tarsalis*; E: *B. unguis*; F: *Enitharoides brasiliensis*; G: *Martarega bentoi*; H: *M. brasiliensis*; I: *M. membranacea*.



**Figura 6.46.** Mapas de adequabilidade para espécies de Nepomorpha com no mínimo vinte registros, algoritmo RDF, Belostomatidae (A-D), Gelastocoridae (E), Naucoridae (F-H), Pleidae (I) e Micronectidae (J). A: *Belostoma anurum*; B: *B. micantulum*; C: *B. plebejum*; D: *Lethocerus annulipes*; E: *Gelastocoris flavus*; F: *Limnocoris pusillus*; G: *P. b. nigriculus*; H: *Maculambrysus stali*; I: *Neoplea maculosa*; J: *Tenagobia incerta*.

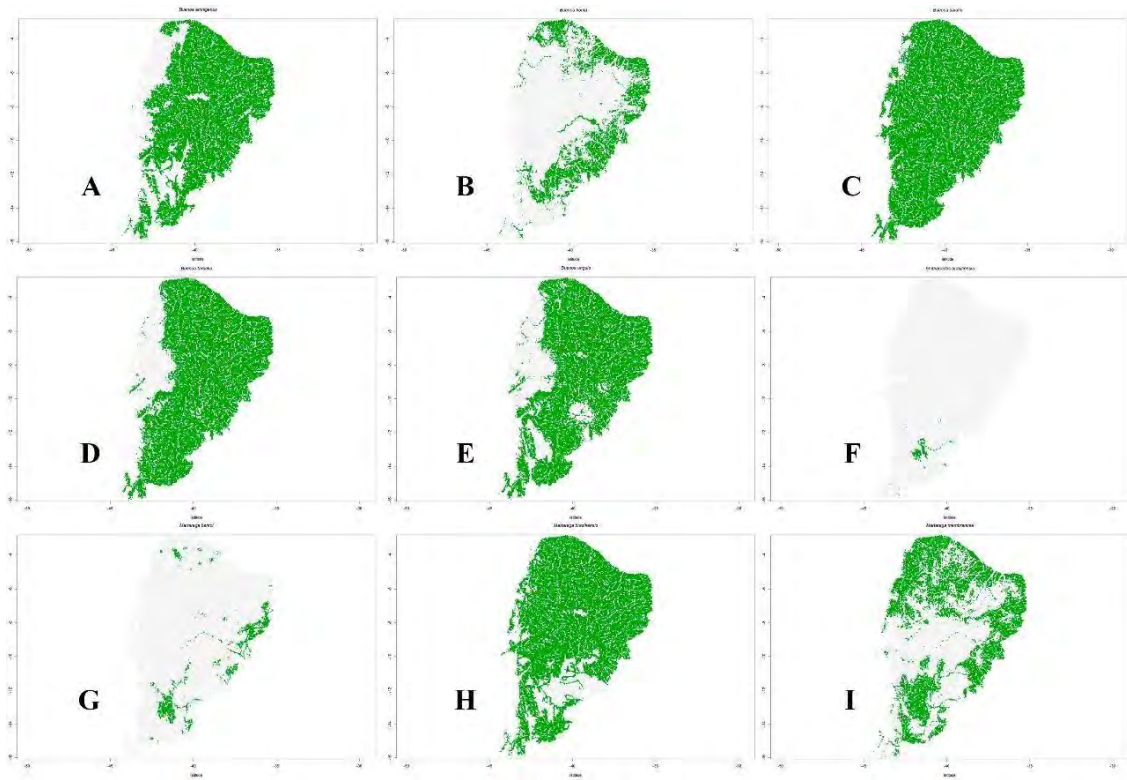


**Figura 6.47.** Mapas de adequabilidade para espécies de Nepomorpha com no mínimo vinte registros, algoritmo SVM, Notonectidae, subfamílias Anisopinae (A-F) e Notonectinae (F-I). A: *Buenoa amnigenus*; B: *B. konta*; C: *B. salutaris*; D: *B. tarsalis*; E: *B. unguis*; F: *Enitharoides brasiliensis*; G: *Martarega bentoi*; H: *M. brasiliensis*; I: *M. membranacea*.

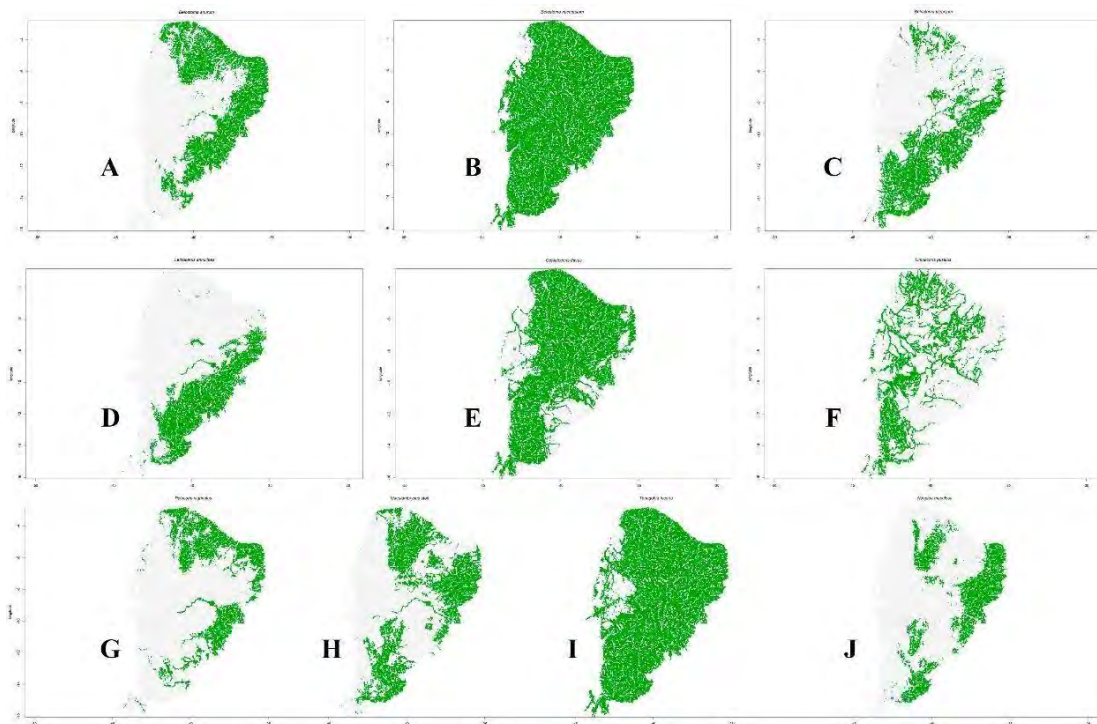


**Figura 6.48.** Mapas de adequabilidade para espécies de Nepomorpha com no mínimo vinte registros, algoritmo SVM, Belostomatidae(A-D), Gelastocoridae(E), Naucoridae (F-H), Pleidae (I) e Micronectidae

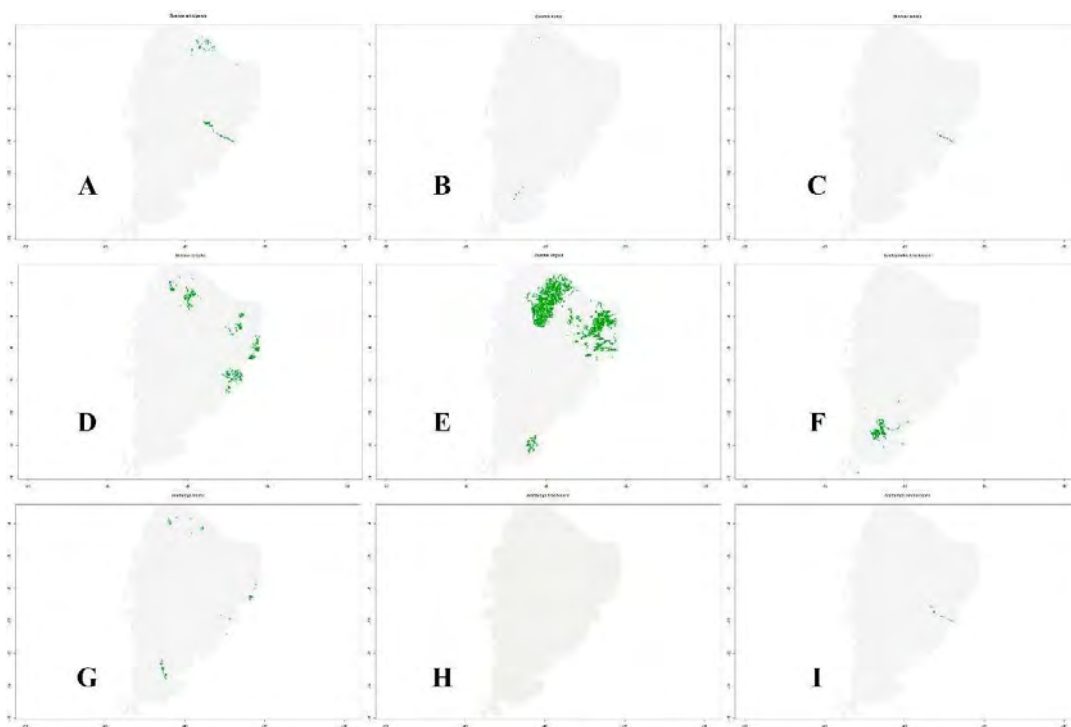
(J). A: *Belostoma anurum*; B: *B. micantulum*; C: *B. plebejum*; D: *Lethocerus annulipes*; E: *Gelastocoris f. flavus*; F: *Limnocoris pusillus*; G: *P. b. nigrliculus*; H: *Maculambrysus stali*; I: *Neoplea maculosa*; J: *Tenagobia incerta*.



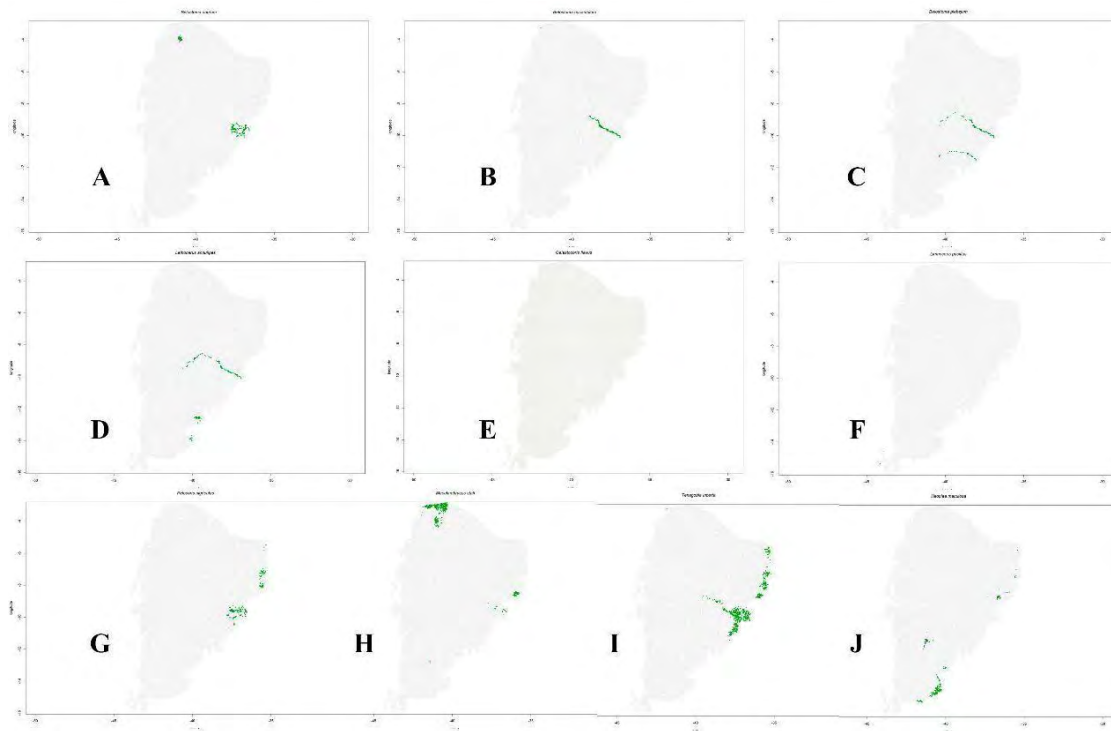
**Figura 6.49.** Mapas de distribuição potencial para espécies de Nepomorpha com no mínimo vinte registros, algoritmo GAU, Notonectidae, subfamílias Anisopinae (A-F) e Notonectinae (F-I). A: *Buenoa amnigenus*; B: *B. konta*; C: *B. salitis*; D: *B. tarsalis*; E: *B. unguis*; F: *Enitharoides brasiliensis*; G: *Martarega bentoi*; H: *M. brasiliensis*; I: *M. membranacea*.



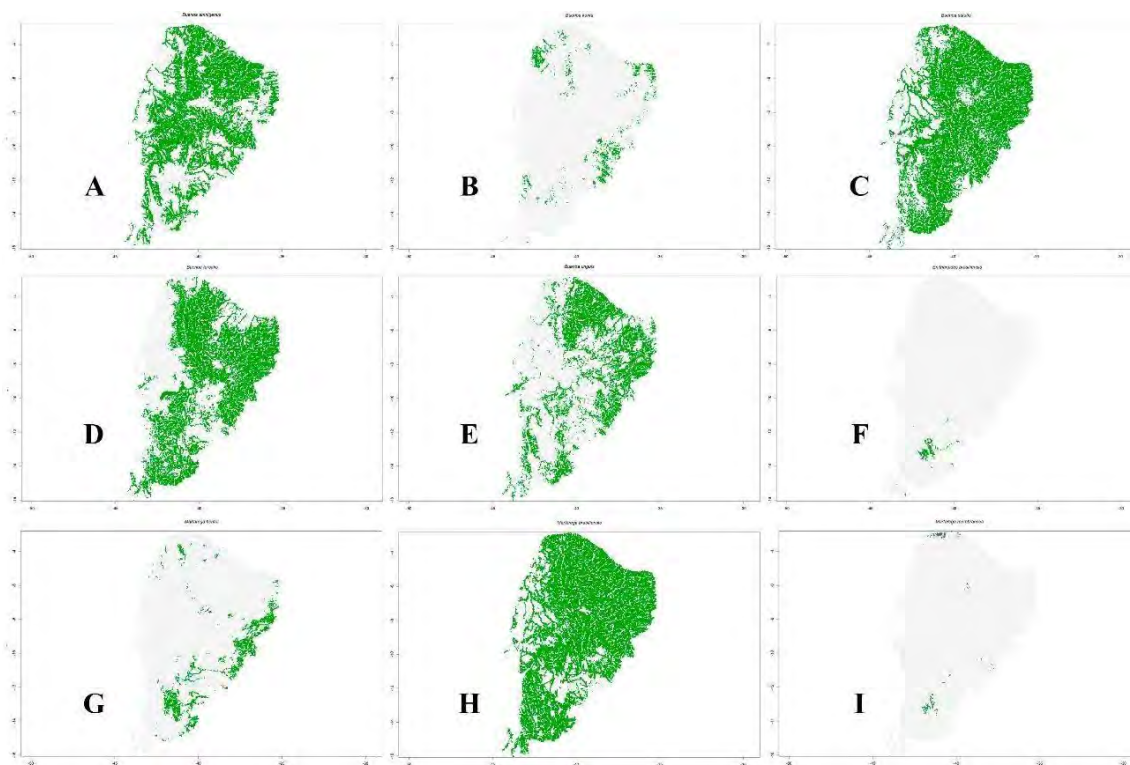
**Figura 6.50.** Mapas de distribuição potencial para espécies de Nepomorpha com no mínimo vinte registros, algoritmo GAU, Belostomatidae (A-D), Gelastocoridae (E), Naucoridae (F-H), Pleidae (I) e Micronectidae (J). A: *Belostoma anurum*; B: *B. micantulum*; C: *B. plebejum*; D: *Lethocerus annulipes*; E: *Gelastocoris f. flavus*; F: *Limnocoris pusillus*; G: *P. b. nigriculus*; H: *Maculambrysus stali*; I: *Tenagobia incerta*; J: *Neoplea maculosa*.



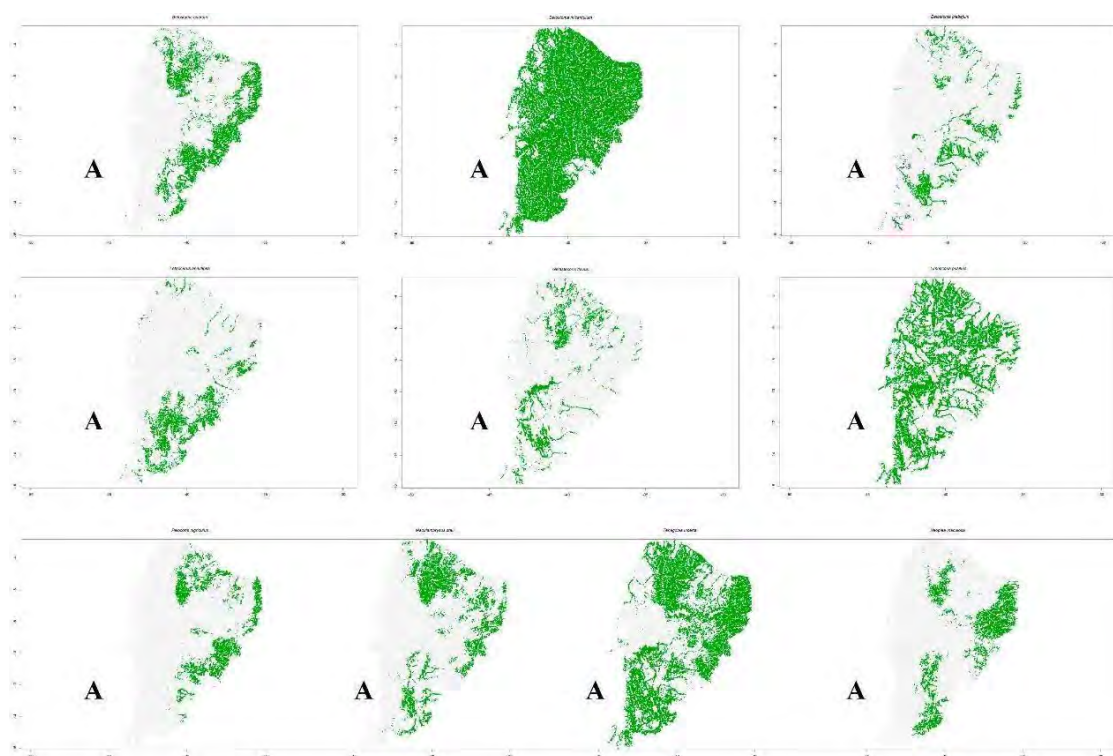
**Figura 6.51.** Mapas de distribuição potencial para espécies de Nepomorpha com no mínimo vinte registros, algoritmo MXD, Notonectidae, subfamílias Anisopinae (A-F) e Notonectinae (F-I). A: *Buenoa amnigenus*; B: *B. konta*; C: *B. salutaris*; D: *B. tarsalis*; E: *B. unguis*; F: *Enitharoides brasiliensis*; G: *Martarega bentoi*; H: *M. brasiliensis*; I: *M. membranacea*.



**Figura 6.52.** Mapas de distribuição potencial para espécies de Nepomorpha com no mínimo vinte registros, algoritmo MXD, Belostomatidae (A-D), Gelastocoridae (E), Naucoridae (F-H), Pleidae (I) e Micronectidae (J). A: *Belostoma anurum*; B: *B. micantulum*; C: *B. plebejum*; D: *Lethocerus annulipes*; E: *Gelastocoris f. flavus*; F: *Limnocoris pusillus*; G: *P. b. nigriculus*; H: *Maculambrysus stali*; I: *Tenagobia incerta*; J: *Neoplea maculosa*.

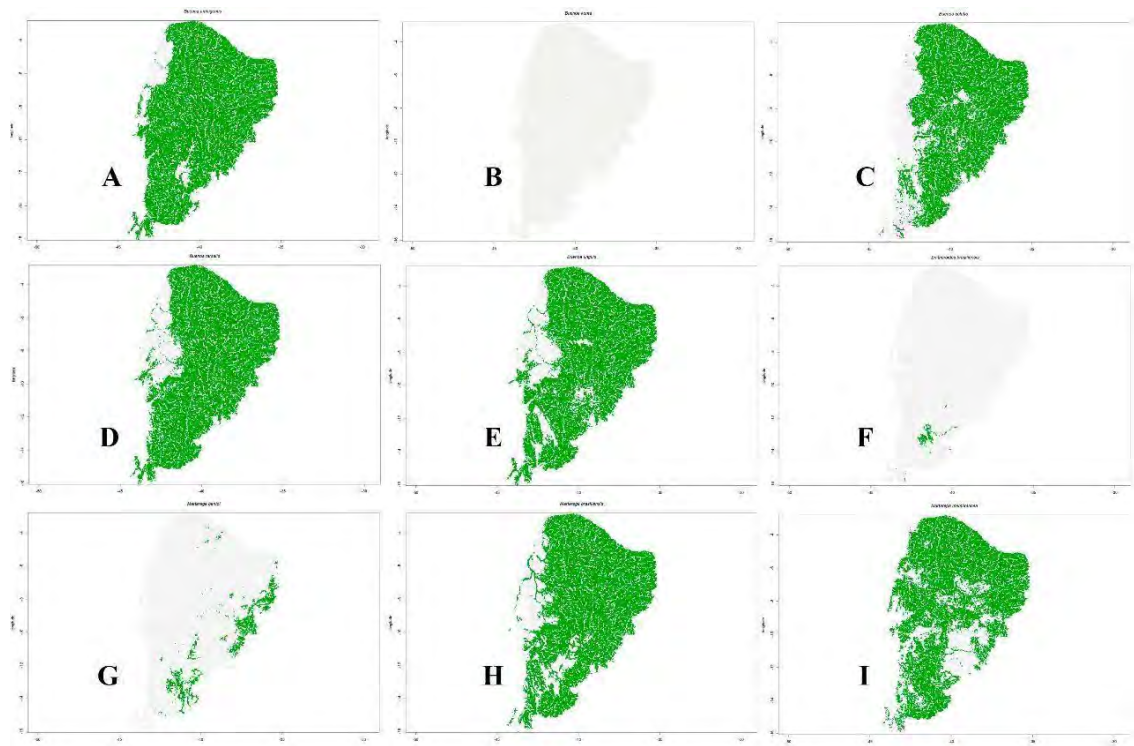


**Figura 6.53.** Mapas de distribuição potencial para espécies de Nepomorpha com no mínimo vinte registros, algoritmo RDF, Notonectidae, subfamílias Anisopinae (A-F) e Notonectinae (F-I). A: *Buenoa amnigenus*; B: *B. konta*; C: *B. salutaris*; D: *B. tarsalis*; E: *B. unguis*; F: *Enitharoides brasiliensis*; G: *Martarega bentoi*; H: *M. brasiliensis*; I: *M. membranacea*.

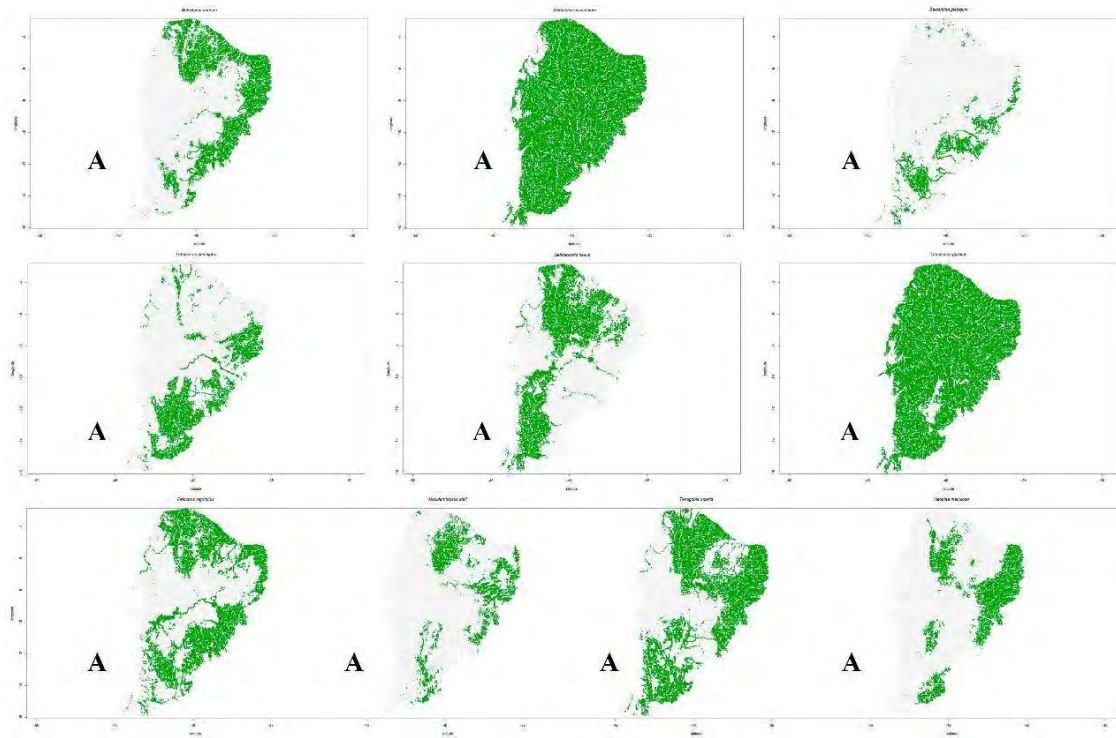


**Figura 6.54.** Mapas de distribuição potencial para espécies de Nepomorpha com no mínimo vinte registros, algoritmo RDF, Belostomatidae (A-D), Gelastocoridae (E), Naucoridae (F-H), Pleidae (I) e Micronectidae.

(J). A: *Belostoma anurum*; B: *B. micantulum*; C: *B. plebejum*; D: *Lethocerus annulipes*; E: *Gelastocoris f. flavus*; F: *Limnocoris pusillus*; G: *P. b. nigrliculus*; H: *Maculambrysus stali*; I: *Tenagobia incerta*; J: *Neoplea maculosa*.



**Figura 6.55.** Mapas de distribuição potencial para espécies de Nepomorpha com no mínimo vinte registros, algoritmo SVM, Notonectidae, subfamílias Anisopinae (A-F) e Notonectinae (F-I). A: *Buenoa amnigenus*; B: *B. konta*; C: *B. salutis*; D: *B. tarsalis*; E: *B. unguis*; F: *Enitharoides brasiliensis*; G: *Martarega bentoi*; H: *M. brasiliensis*; I: *M. membranacea*.



**Figura 6.56.** Mapas de distribuição potencial para espécies de Nepomorpha com no mínimo vinte registros, algoritmo SVM, Belostomatidae (A-D), Gelastocoridae (E), Naucoridae (F-H), Pleidae (I) e Micronectidae (J). A: *Belostoma anurum*; B: *B. micantulum*; C: *B. plebejum*; D: *Lethocerus annulipes*; E: *Gelastocoris f. flavus*; F: *Limnocoris pusillus*; G: *P. b. nigriculus*; H: *Maculambrysus stali*; I: *Tenagobia incerta*; J: *Neoplea maculosa*.