



# Using Natural Communities and Reference Sites to Inform Native Plant Selection

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Initiative

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# Objectives



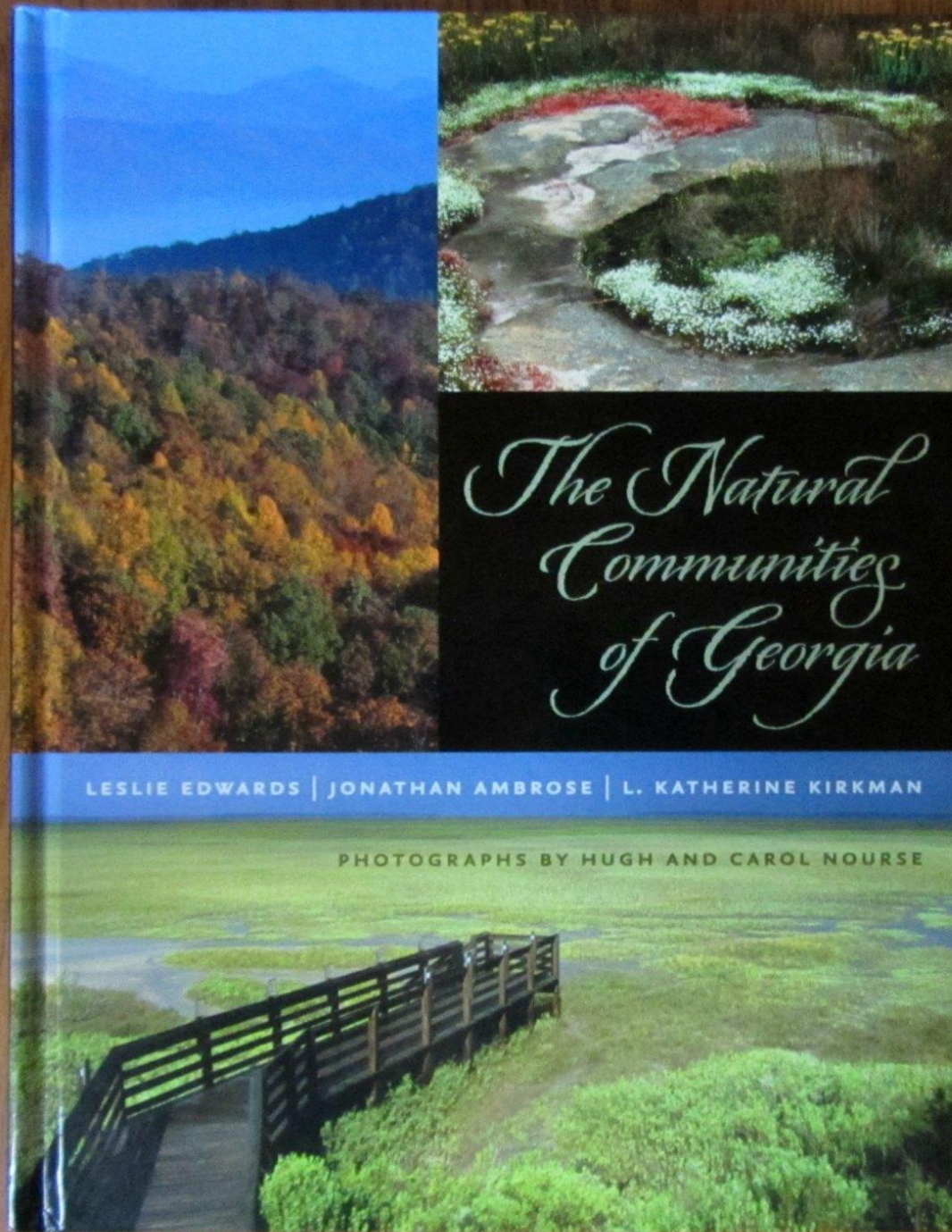
- Better understand the ecological landscape of Georgia, particularly the Coastal Plain
- Define natural communities and understand how natural communities interact and drive biodiversity.
- Develop a general understanding of different community types in Georgia's Coastal Plain
- Explain how you can use local natural areas as reference sites to inform native planting decisions in a restoration or garden setting.

# Why Native Plants?

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- Ecological foundation – Plants define natural communities.
- Wildlife associations (Plants are habitat)
- Specialization & Evolutionary History





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# What is a natural community?

## (And why does it matter?)

- “A natural community is an assemblage of native plant and animal species, considered together with the physical environment and associated ecological processes, which usually recurs on the landscape...when native species predominate and are distributed across the landscape in response to disturbance factors such as fire frequency, flood regimes, wind disturbances, or physical attributes such as landforms, soil nutrients, or moisture.”
  - Discrete, local/regional level species assemblages, defined primarily by plant composition, which is determined largely by geology, hydrology, and ecological drivers
  - Local “ecosystems,” much more specifically defined than eco-regions, biomes, etc.
  - For native plant selection in restoration projects (and native plant gardening), natural communities can act as **reference sites** (“templates”) for decision-making

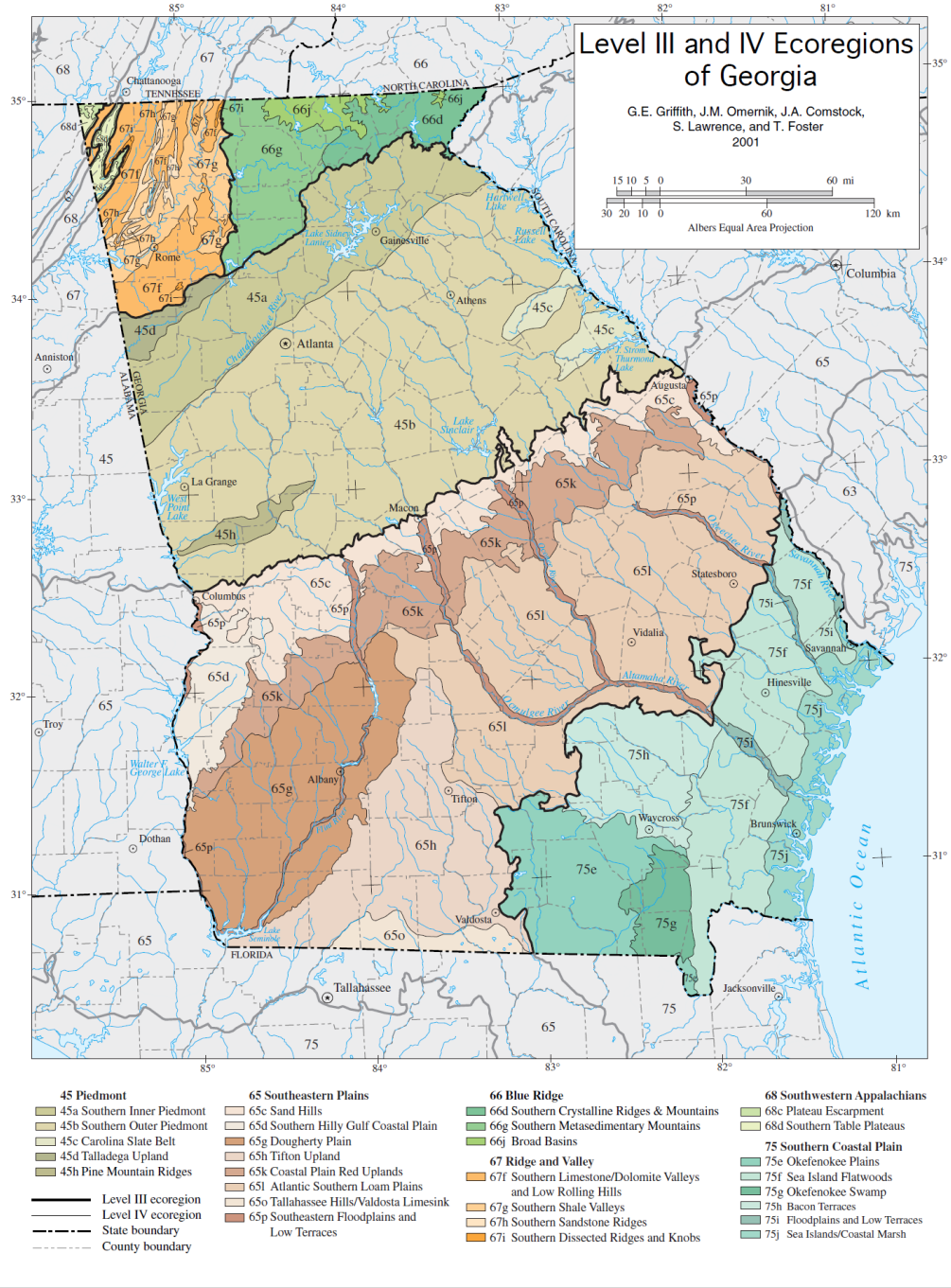
# GEOLOGY OF GEORGIA

## DIGITAL DATA

SCALE 1:633,600  
1 inch represents 10 miles

### EXPLANATION

|                                        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |   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| Blue Ridge & Piedmont<br>igneous rocks | g1 | g2 | g3 | g4 | g5 | g6 | g7 | g8 | g9 | g10 | g11 | g12 | g13 | g14 | g15 | g16 | g17 | g18 | g19 | g20 | g21 | g22 | g23 | g24 | g25 | g26 | g27 | g28 | g29 | g30 | g31 | g32 | g33 | g34 | g35 | g36 | g37 | g38 | g39 | g40 | g41 | g42 | g43 | g44 | g45 | g46 | g47 | g48 | g49 | g50 | g51 | g52 | g53 | g54 | g55 | g56 | g57 | g58 | g59 | g60 | g61 | g62 | g63 | g64 | g65 | g66 | g67 | g68 | g69 | g70 | g71 | g72 | g73 | g74 | g75 | g76 | g77 | g78 | g79 | g80 | g81 | g82 | g83 | g84 | g85 | g86 | g87 | g88 | g89 | g90 | g91 | g92 | g93 | g94 | g95 | g96 | g97 | g98 | g99 | g100 | g101 | g102 | g103 | g104 | g105 | g106 | g107 | g108 | g109 | g110 | g111 | g112 | g113 | g114 | g115 | g116 | g117 | g118 | g119 | g120 | g121 | g122 | g123 | g124 | g125 | g126 | g127 | g128 | g129 | g130 | g131 | g132 | g133 | g134 | g135 | g136 | g137 | g138 | g139 | g140 | g141 | g142 | g143 | g144 | g145 | g146 | g147 | g148 | g149 | g150 | g151 | g152 | g153 | g154 | g155 | g156 | g157 | g158 | g159 | g160 | g161 | g162 | g163 | g164 | g165 | g166 | g167 | g168 | g169 | g170 | g171 | g172 | g173 | g174 | g175 | g176 | g177 | g178 | g179 | g180 | g181 | g182 | g183 | g184 | g185 | g186 | g187 | g188 | g189 | g190 | g191 | g192 | g193 | g194 | g195 | g196 | g197 | g198 | g199 | g200 | g201 | g202 | g203 | g204 | g205 | g206 | g207 | g208 | g209 | g210 | g211 | g212 | g213 | g214 | g215 | g216 | g217 | g218 | g219 | g220 | g221 | g222 | g223 | g224 | g225 | g226 | g227 | g228 | g229 | g230 | g231 | g232 | g233 | g234 | g235 | g236 | g237 | g238 | g239 | g240 | g241 | g242 | g243 | g244 | g245 | g246 | g247 | g248 | g249 | g250 | g251 | g252 | g253 | g254 | g255 | g256 | g257 | g258 | g259 | g260 | g261 | g262 | g263 | g264 | g265 | g266 | g267 | g268 | g269 | g270 | g271 | g272 | g273 | g274 | g275 | g276 | g277 | g278 | g279 | g280 | g281 | g282 | g283 | g284 | g285 | g286 | g287 | g288 | g289 | g290 | g291 | g292 | g293 | g294 | g295 | g296 | g297 | g298 | g299 | g300 | g301 | g302 | g303 | g304 | g305 | g306 | g307 | g308 | g309 | g310 | g311 | g312 | g313 | g314 | g315 | g316 | g317 | g318 | g319 | g320 | g321 | g322 | g323 | g324 | g325 | g326 | g327 | g328 | g329 | g330 | g331 | g332 | g333 | g334 | g335 | g336 | g337 | g338 | g339 | g340 | g341 | g342 | g343 | g344 | g345 | g346 | g347 | g348 | g349 | g350 | g351 | g352 | g353 | g354 | g355 | g356 | g357 | g358 | g359 | g360 | g361 | g362 | g363 | g364 | g365 | g366 | g367 | g368 | g369 | g370 | g371 | g372 | g373 | g374 | g375 | g376 | g377 | g378 | g379 | g380 | g381 | g382 | g383 | g384 | g385 | g386 | g387 | g388 | g389 | g390 | g391 | g392 | g393 | g394 | g395 | g396 | g397 | g398 | g399 | g400 | g401 | g402 | g403 | g404 | g405 | g406 | g407 | g408 | g409 | g410 | g411 | g412 | g413 | g414 | g415 | g416 | g417 | g418 | g419 | g420 | g421 | g422 | g423 | g424 | g425 | g426 | g427 | g428 | g429 | g430 | g431 | g432 | g433 | g434 | g435 | g436 | g437 | g438 | g439 | g440 | g441 | g442 | g443 | g444 | g445 | g446 | g447 | g448 | g449 | g450 | g451 | g452 | g453 | g454 | g455 | g456 | g457 | g458 | g459 | g460 | g461 | g462 | g463 | g464 | g465 | g466 | g467 | g468 | g469 | g470 | g471 | g472 | g473 | g474 | g475 | g476 | g477 | g478 | g479 | g480 | g481 | g482 | g483 | g484 | g485 | g486 | g487 | g488 | g489 | g490 | g491 | g492 | g493 | g494 | g495 | g496 | g497 | g498 | g499 | g500 | g501 | g502 | g503 | g504 | g505 | g506 | g507 | g508 | g509 | g510 | g511 | g512 | g513 | g514 | g515 | g516 | g517 | g518 | g519 | g520 | g521 | g522 | g523 | g524 | g525 | g526 | g527 | g528 | g529 | g530 | g531 | g532 | g533 | g534 | g535 | g536 | g537 | g538 | g539 | g540 | g541 | g542 | g543 | g544 | g545 | g546 | g547 | g548 | g549 | g550 | g551 | g552 | g553 | g554 | g555 | g556 | g557 | g558 | g559 | g560 | g561 | g562 | g563 | g564 | g565 | g566 | g567 | g568 | g569 | g570 | g571 | g572 | g573 | g574 | g575 | g576 | g577 | g578 | g579 | g580 | g581 | g582 | g583 | g584 | g585 | g586 | g587 | g588 | g589 | g590 | g591 | g592 | g593 | g594 | g595 | g596 | g597 | g598 | g599 | g600 | g601 | g602 | g603 | g604 | g605 | g606 | g607 | g608 | g609 | g610 | g611 | g612 | g613 | g614 | g615 | g616 | g617 | g618 | g619 | g620 | g621 | g622 | g623 | g624 | g625 | g626 | g627 | g628 | g629 | g630 | g631 | g632 | g633 | g634 | g635 | g636 | g637 | g638 | g639 | g640 | g641 | g642 | g643 | g644 | g645 | g646 | g647 | g648 | g649 | g650 | g651 | g652 | g653 | g654 | g655 | g656 | g657 | g658 | g659 | g660 | g661 | g662 | g663 | g664 | g665 | g666 | g667 | g668 | g669 | g670 | g671 | g672 | g673 | g674 | g675 | g676 | g677 | g678 | g679 | g680 | g681 | g682 | g683 | g684 | g685 | g686 | g687 | g688 | g689 | g690 | g691 | g692 | g693 | g694 | g695 | g696 | g697 | g698 | g699 | g700 | g701 | g702 | g703 | g704 | g705 | g706 | g707 | g708 | g709 | g710 | g711 | g712 | g713 | g714 | g715 | g716 | g717 | g718 | g719 | g720 | g721 | g722 | g723 | g724 | g725 | g726 | g727 | g728 | g729 | g730 | g731 | g732 | g733 | g734 | g735 | g736 | g737 | g738 | g739 | g740 | g741 | g742 | g743 | g744 | g745 | g746 | g747 | g748 | g749 | g750 | g751 | g752 | g753 | g754 | g755 | g756 | g757 | g758 | g759 | g760 | g761 | g762 | g763 | g764 | g765 | g766 | g767 | g768 | g769 | g770 | g771 | g772 | g773 | g774 | g775 | g776 | g777 | g778 | g779 | g780 | g781 | g782 | g783 | g784 | g785 | g786 | g787 | g788 | g789 | g790 | g791 | g792 | g793 | g794 | g795 | g796 | g797 | g798 | g799 | g800 | g801 | g802 | g803 | g804 | g805 | g806 | g807 | g808 | g809 | g810 | g811 | g812 | g813 | g814 | g815 | g816 | g817 | g818 | g819 | g820 | g821 | g822 | g823 | g824 | g825 | g826 | g827 | g828 | g829 | g830 | g831 | g832 | g833 | g834 | g835 | g836 | g837 | g838 | g839 | g840 | g841 | g842 | g843 | g844 | g845 | g846 | g847 | g848 | g849 | g850 | g851 | g852 | g853 | g854 | g855 | g856 | g857 | g858 | g859 | g860 | g861 | g862 | g863 | g864 | g865 | g866 | g867 | g868 | g869 | g870 | g871 | g872 | g873 | g874 | g875 | g876 | g877 | g878 | g879 | g880 | g881 | g882 | g883 | g884 | g885 | g886 | g887 | g888 | g889 | g890 | g891 | g892 | g893 | g894 | g895 | g896 | g897 | g898 | g899 | g900 | g901 | g902 | g903 | g904 | g905 | g906 | g907 | g908 | g909 | g910 | g911 | g912 | g913 | g914 | g915 | g916 | g917 | g918 | g919 | g920 | g921 | g922 | g923 | g924 | g925 | g926 | g927 | g928 | g929 | g930 | g931 | g932 | g933 | g934 | g935 | g936 | g937 | g938 | g939 | g940 | g941 | g942 | g943 | g944 | g945 | g946 | g947 | g948 | g949 | g950 | g951 | g952 | g953 | g954 | g955 | g956 | g957 | g958 | g959 | g960 | g961 | g962 | g963 | g964 | g965 | g966 | g967 | g968 | g969 | g970 | g971 | g972 | g973 | g974 | g975 | g976 | g977 | g978 | g979 | g980 | g981 | g982 | g983 | g984 | g985 | g986 | g987 | g988 | g989 | g990 | g991 | g992 | g993 | g994 | g995 | g996 | g997 | g998 | g999 | g1000 | g1001 | g1002 | g1003 | g1004 | g1005 | g1006 | g1007 | g1008 | g1009 | g1010 | g1011 | g1012 | g1013 | g1014 | g1015 | g1016 | g1017 | g1018 | g1019 | g1020 | g1021 | g1022 | g1023 | g1024 | g1025 | g1026 | g1027 | g1028 | g1029 | g1030 | g1031 | g1032 | g1033 | g1034 | g1035 | g1036 | g1037 | g1038 | g1039 | g1040 | g1041 | g1042 | g1043 | g1044 | g1045 | g1046 | g1047 | g1048 | g1049 | g1050 | g1051 | g1052 | g1053 | g1054 | g1055 | g1056 | g1057 | g1058 | g1059 | g1060 | g1061 | g1062 | g1063 | g1064 | g1065 | g1066 | g1067 | g1068 | g1069 | g1070 | g1071 | g1072 | g1073 | g1074 | g1075 | g1076 | g1077 | g1078 | g1079 | g1080 | g1081 | g1082 | g1083 | g1084 | g1085 | g1086 | g1087 | g1088 | g1089 | g1090 | g1091 | g1092 | g1093 | g1094 | g1095 | g1096 | g1097 | g1098 | g1099 | g1100 | g1101 | g1102 | g1103 | g1104 | g1105 | g1106 | g1107 | g1108 | g1109 | g1110 | g1111 | g1112 | g1113 | g1114 | g1115 | g1116 | g1117 | g1118 | g1119 | g1120 | g1121 | g1122 | g1123 | g1124 | g1125 | g1126 | g1127 | g1128 | g1129 | g1130 | g1131 | g1132 | g1133 | g1134 | g1135 | g1136 | g1137 | g1138 | g1139 | g1140 | g1141 | g1142 | g1143 | g1144 | g1145 | g1146 | g1147 | g1148 | g1149 | g1150 | g1151 | g1152 | g1153 | g1154 | g1155 | g1156 | g1157 | g1158 | g1159 | g1160 | g1161 | g1162 | g1163 | g1164 | g1165 | g1166 | g1167 | g1168 | g1169 | g1170 | g1171 | g1172 | g1173 | g1174 | g1175 | g1176 | g1177 | g1178 | g1179 | g1180 | g1181 | g1182 | g1183 | g1184 | g1185 | g1186 | g1187 | g1188 | g1189 | g1190 | g1191 | g1192 | g1193 | g1194 | g1195 | g1196 | g1197 | g1198 | g1199 | g1200 | g1201 | g1202 | g1203 | g1204 | g1205 | g1206 | g1207 | g1208 | g1209 | g1210 | g1211 | g1212 | g1213 | g1214 | g1215 | g1216 | g1217 | g1218 | g1219 | g1220 | g1221 | g1222 | g1223 | g1224 | g1225 | g1226 | g1227 | g1228 | g1229 | g1230 | g1231 | g1232 | g1233 | g1234 | g1235 | g1236 | g1237 | g1238 | g1239 | g1240 | g1241 | g1242 | g1243 | g1244 | g1245 | g1246 | g1247 | g1248 | g1249 | g1250 | g1251 | g1252 | g1253 | g1254 | g1255 | g1256 | g1257 | g1258 | g1259 | g1260 | g1261 | g1262 | g1263 | g1264 | g1265 | g1266 | g1267 | g1268 | g1269 | g1270 | g1271 | g1272 | g1273 | g1274 | g1275 | g1276 | g1277 | g1278 | g1279 | g1280 | g1281 | g1282 | g1283 | g1284 | g1285 | g1286 | g1287 | g1288 | g1289 | g1290 | g1291 | g1292 | g1293 | g1294 | g1295 | g1296 | g1297 | g1298 | g1299 | g1300 | g1301 | g1302 | g1303 | g1304 | g1305 | g1306 | g1307 | g1308 | g1309 | g1310 | g1311 | g1312 | g1313 | g1314 | g1315 | g1316 | g1317 | g1318 | g1319 | g1320 | g1321 | g1322 | g1323 | g1324 | g1325 | g1326 |
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# Georgia's Natural Communities

- State/Regional Level – Ecoregions (or Physiographic Region)
  - Blue Ridge Ridge & Valley/Cumberland Plateau, Piedmont, Coastal Plain (Southern Plains, Southeastern Coastal Plain)
  - Typically defined by underlying geology
  - Natural communities within ecoregion categories are defined by more discrete conditions, with local underlying geology, hydrology, and ecological drivers determining plant species composition
  - **Blue Ridge:**
    - Northern Hardwood & Boulderfield Forests, Cove Forests, Pine-Oak Woodlands, High-Elevation Rock Outcrops, Mountain Bogs
  - **Ridge & Valley/Cumberland Plateau:**
    - Dry Calcareous Forests, Montane Longleaf Woodlands, Calcareous Glades & Barrens, Acidic Cliffs & Rock Outcrops, Calcareous Flatwoods
  - **Piedmont:**
    - Pine-Oak Woodlands, Montane Longleaf Woodlands, Granite Outcrops, Glades & Barrens, Prairies & Savannas, Flatwoods
  - **Coastal Plain:**
    - Sandhills, Longleaf Pine Woodlands and Savannas, Acidic Glades, Barrens & Rocky Woodlands (Altamaha Grit), Pine Flatwoods, Seepage Slope Herb Bogs
    - More on this later.
  - Naturereserve level categories can get even more narrow in scope and can become extremely localized and species-specific.



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# Natural Communities & Biodiversity

- Natural communities come together on the landscape, creating a mosaic of different plant assemblages and associated faunal communities that drive landscape-level biodiversity. These communities are intricately linked through transition zones and are subject to ecological drivers of adjacent communities.
  - Macro- vs Micro-Communities



# Embedded Communities – Macro vs Micro Communities

- Natural communities can be broadly categorized as landscape level macro communities and smaller micro-communities **embedded** within, or adjacent to, landscape level macro-communities.
- Transitions between communities usually related to gradients in geology/hydrology and can have representative species from neighboring community types – **leads to pockets with extremely high biodiversity**
- Georgia's state-level geologic diversity (eco regions), coupled with numerous definable natural communities within, drives biodiversity in the state - #6 in the country for species richness (largely attributable to plant diversity).





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# Natural Communities of Georgia's Coastal Plain

- Coastal Plain defined by two geologic sub-areas:
  - Southern plains (west, central south GA) – Dougherty Plain, Tifton Uplands, Fall Line Sandhills
  - Southeastern Coastal Plain (southeast GA) – Sea Island Flatwoods, Okefenokee, Barrier Islands
- Macro-Communities:
  - Upland Longleaf Pine Savannas (Xeric/Mesic, Transitional)
  - Pine Flatwoods
  - Sandhills (depending on where you are)
  - Floodplains and River Swamps (hard to place as a macro vs micro, transition from bottoms to uplands extremely important for landscape diversity)
- Micro/Embedded Communities:
  - Sandhills, Isolated Wetlands (Depression Wetlands), Glades/Barrens (Altamaha Grit), Seepage Slope Herb Bogs, Cypress-Gum Ponds



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# Natural Communities of Georgia's Coastal Plain (Continued)



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## Natural Communities of Georgia's Coastal Plain (Continued)



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# Natural Communities of Georgia's Coastal Plain (Continued)



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# Natural Communities of Georgia's Coastal Plain (Continued)



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# Natural Communities of Georgia's Coastal Plain (Continued)



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# Natural Communities of Georgia's Coastal Plain (Continued)



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# Natural Communities of Georgia's Coastal Plain (Continued)



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# Natural Communities of Georgia's Coastal Plain (Continued)



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# Natural Communities of Georgia's Coastal Plain (Continued)



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# Natural Communities of Georgia's Coastal Plain (Continued)



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# Natural Communities of Georgia's Coastal Plain (Continued)



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# Natural Communities of Georgia's Coastal Plain (Continued)

- General Habitat Trends

- Most natural communities in the Coastal Plain (and throughout Georgia, historically) are herbaceous-dominated, with open forest structure and a diversity of native grasses and forbs.
- More accurately, grasslands woodlands and savannas rather than what would typically be considered a forest
- Exceptions include communities protected from drivers (such as fire) by virtue of topography, hydrology, and presence/absence of suitable fuels – cove forests, ravines, permanent/semi-permanent wetlands/bottoms where fire spread would be limited
- Transitions matter – often there is a gradient from one plant community to another, resulting in locally high species richness as communities overlap, while also creating unique conditions associated with high levels of **endemism**.

- Ecological Drivers and Disturbance

- Georgia's Coastal Plain (and Georgia in its entirety) is a fire-obligate landscape, except for certain natural communities, with most communities requiring a frequent fire return interval (~2 years in Coastal Plain)
- Hurricanes/tornadoes, flood events, etc



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# Natural Communities of Georgia's Coastal Plain – Indicator Species

- Sandhills – Longleaf pine, turkey oak, sparkleberry, wiregrass (*Aristida beyrichiana*), arrowfeather (*Aristida purpureascens*), gopher apple, sandhills bluestar, silkgrass, pink sandhill lupine
- See also: Dry Evergreen Oak Woodlands (somewhat similar to sandhills superficially, but more dominated by woody shrubs)



# Natural Communities of Georgia's Coastal Plain – Indicator Species

## Longleaf Pine Woodlands

- Dry Uplands: Longleaf pine, oaks (sand live, sand laurel, bluejack, turkey, sand post), wiregrass (*Aristida beyrichiana*), arrowfeather (*Aristida purpureascens*), little bluestem, indiangrass, sandhills dropseed, gopher apple, sandhills bluestar, slimleaf pawpaw, butterfly pea, Maryland golden aster, silkgrass,
- Mesic Uplands: Longleaf pine, southern red oak, sand laurel oak, sassafras, big bluestem, little bluestem, lopsided indiangrass, wiregrass, arrowfeather, elegant blazing star, sensitive briar, bracken fern, black eyed susan, goat's rue



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# Natural Communities of Georgia's Coastal Plain – Indicator Species

## Altamaha Grit (Acidic Glades, Barrens and Rocky Woodlands)

- Often associated with exposed rock outcrops
- Georgia-endemic geology (with Georgia endemic species)
- Indicator Species: Longleaf pine, shortleaf pine, oaks (turkey, sand post, blackjack), mountain laurel, splitbeard bluestem, Elliott's bluestem, southern wiregrass, Georgia beargrass, goat's rue, yucca, cutleaf beardtongue (Georgia endemic)



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# Natural Communities of Georgia's Coastal Plain – Indicator Species

## Pine Flatwoods

- Historically much more widespread in the southeastern coastal plain; greatly reduced in Georgia due to development, bedding practices in timber industry, and fire suppression
- Indicator Species – Slash pine, pond pine, longleaf pine, huckleberry, wax myrtle, saw palmetto, wiregrass, toothache grass, elegant blazing star, switchgrass, meadow beauty (*Rhexia sp.*), Florida dropseed (*Sporobolus floridanus*), yellow-eyed grass (*Xyris sp.*)

## Seepage Slope Herb Bogs & Seepage Slopes

- Open wetlands on lower slopes associated with frequently burned pine savannas
- Indicator species – Pines (longleaf, slash, pond), wax myrtle, toothache grass, sundews, bog buttons, pitcher plants, orchids (*Platanthera*, *Spiranthes*, beaksedges (*Rhynchospora*), meadowbeauties (*Rhexia sp.*)



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# Natural Communities of Georgia's Coastal Plain – Indicator Species

## Depression Marshes & Cypress Savannas

- Isolated wetland systems embedded within landscape-level pine savanna matrix
- Often ephemeral (seasonal) and maintained by frequent fire by virtue of connectivity to surrounding uplands
- Critically important breeding habitat for many amphibians of conservation concern
- Indicator Species – pond cypress, swamp tupelo, myrtle holly, maiden cane, blue sedge, longleaf three-awn grass, redroot flatsedge, pipeworts, bladderworts, *Rhexia*, yellow-eyed grass



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# Natural Communities of Georgia's Coastal Plain – Indicator Species

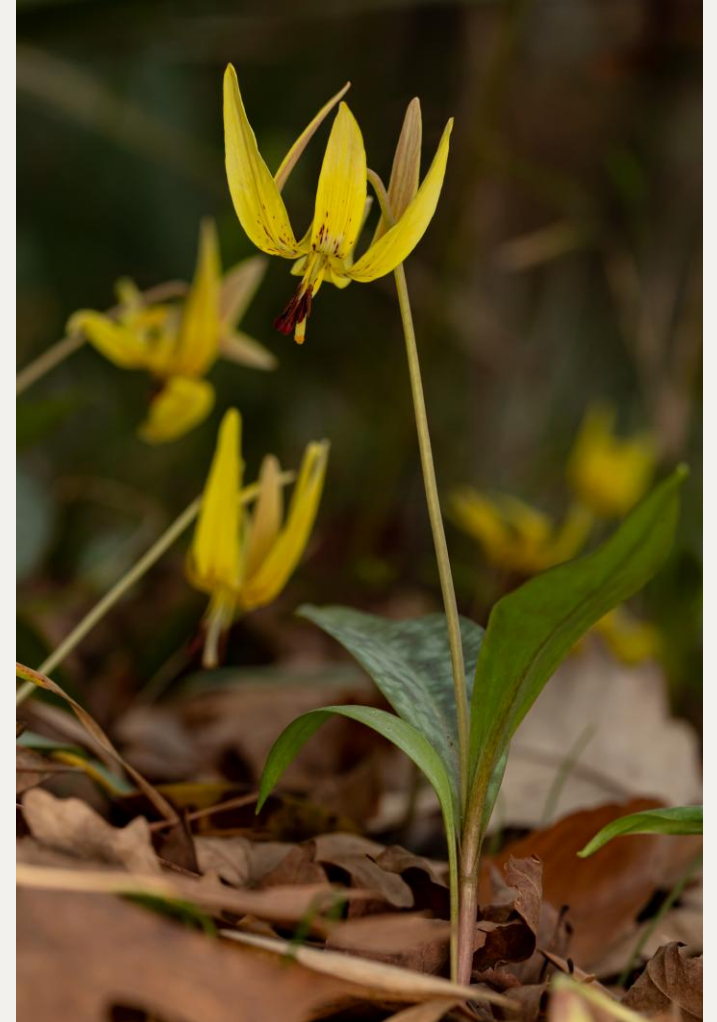
## Other Natural Communities

- **Dry Deciduous Hardwood Forests**

- Typically found on river bluffs, upland/bottomland transition areas
- Indicator Species – hickories, oaks, small-fruited pawpaw, witch hazel, saw palmetto, horse sugar, sparkleberry, deerberry, wood oats (spikegrass),

- **Mesic Slope Forests**

- Mixed evergreen-deciduous forests along steep slopes/bluffs; often associated with ravines
- Indicator Species – hickories, southern magnolia, American beech, swamp chestnut oak, sugar maple, red buckeye, American holly, Piedmont azalea wood oats (spikegrass), blue phlox, Atamasco lilies, *Trillium*



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# Natural Communities of Georgia's Coastal Plain – Indicator Species

## Other Natural Communities

- Blackland Prairies – only found in isolated pockets near Macon; very odd, disjunct plant community
- Mesic Slope Forests
  - Mixed evergreen-deciduous forests along steep slopes/bluffs; often associated with ravines
  - Indicator Species – hickories, southern magnolia, American beech, swamp chestnut oak, sugar maple, red buckeye, American holly, Piedmont azalea wood oaks (spikegrass), blue phlox, Atamasco lilies, *Trillium*
- Cypress-Gum Ponds (Carolina Bays)
- Depression Oak Forests
- Riverine Floodplains, Cypress-Tupelo River Swamps, Bottomland Hardwoods,

A close-up photograph of a butterfly with black and white striped wings feeding on a cluster of bright orange flowers. The butterfly is positioned on the left side of the frame, with its head and proboscis inserted into one of the flowers. The background is a soft, out-of-focus green. A white curved line separates the image from the text on the right.

# Choosing the Right Plants

- Your management goals
- Your physiographic region/geology
- Known/historic ranges
  - <https://plants.usda.gov/home>
- Site conditions – how do they compare to your local natural communities? What are some commonly available plants that fit those community descriptors?
- Use a reference site
  - Natural Communities of Georgia
  - What plants are you seeing on your local natural landscapes that have comparable site conditions to your own?
- Sourcing – knowing what species are readily available; focus on more common/generalist species.

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# Establishing Your Management Goals

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Many native gardeners have broad management goals – often just want to help wildlife in general, create “natural” areas

- What are you managing for? What does the habitat need to look like? Can you make it work in a garden setting? How?
- Project Scale – are you managing a landscape or planting a garden?
- Establishing your management goals is critical.

Are you managing for:

- Pollinators (general, native bees, specific species?)
- Birds (general, specific species?)
- Aesthetics/functionality
- **Biodiversity – Habitat Restoration, Replicating Natural Communities**



# Managing for Biodiversity

- Maximizing diversity on the individual landscape
  - Maximize number of plant species (with plants appropriate for your landscape)
    - Different wildlife species use different plants for different parts of their life cycles (nectivorous adults vs herbivorous larvae; nesting cover vs foraging habitat for birds)
  - Maximize structural diversity (and species diversity within your structural tiers)
    - Vertical – Overstory Trees
    - Intermediate – Midstory, Shrubs, Thickets
    - Groundcover – Herbaceous (grasses, forbs)
    - Landscape would have historically contained a mosaic of plant communities depending on site conditions and disturbance frequency
    - **Remember:** Different wildlife species need different plant communities
- Conservation Focus: What is missing on the landscape?
  - Identify imperiled communities – inform your management decisions.
  - Open plant communities – **grasslands!**

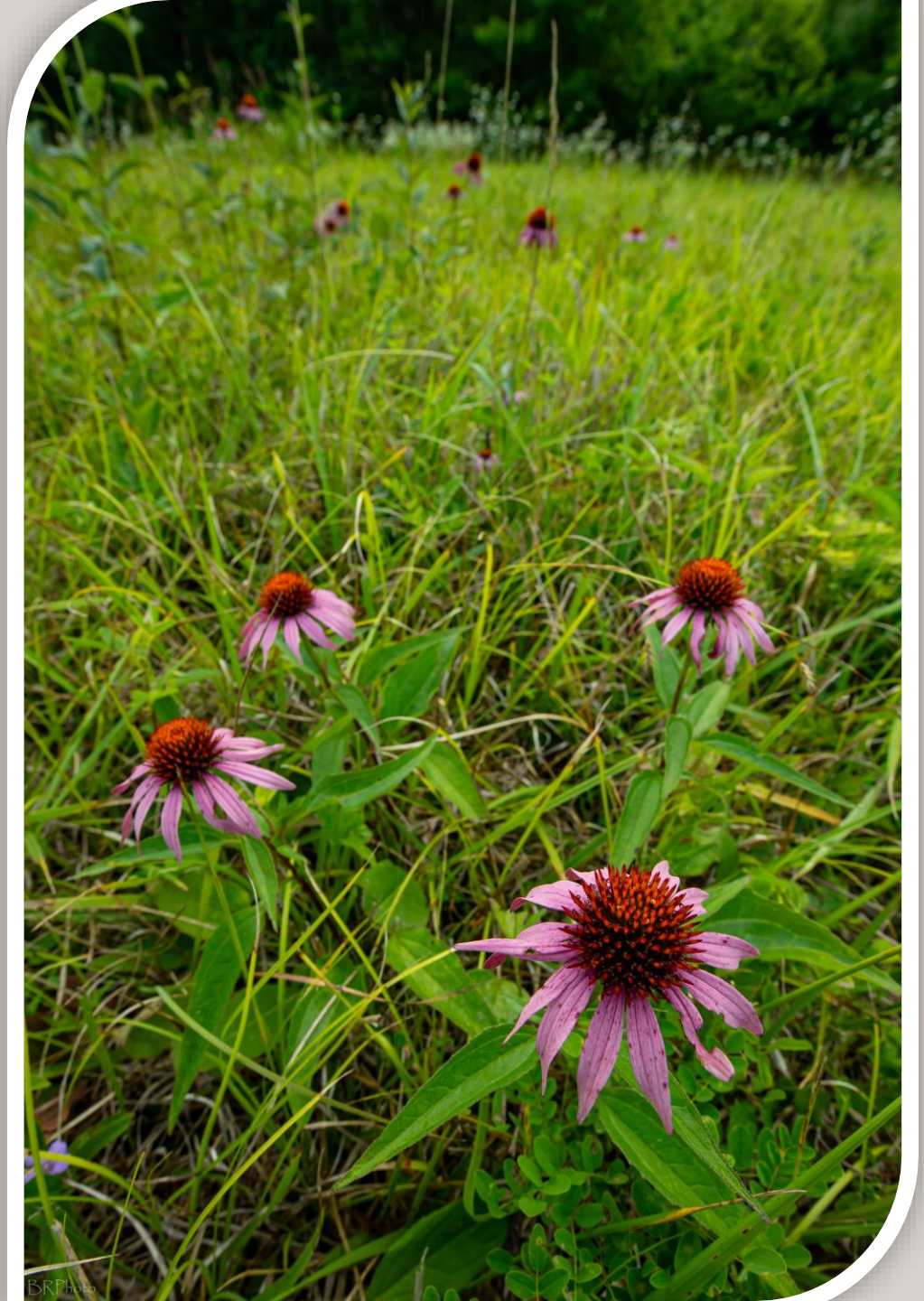


Don't forget your grasses! Important structural component, food source, and visual interest.

- Bluestems (*Andropogon*)
- Little Bluestems (*Schizachyrium*)
- Panicgrass (*Panicum*)
- Indiangrass (*Sorghastrum*)
- Wiregrass/Three-awn Grass (*Aristida*)
- Dropseeds (*Sporobolus*)
- Sedges (*Carex sp.*)
- Beaksedge (*Rhynchospora*)
- And many others – graminoids are often a defining aspect of many natural communities; luckily, you can often determine species selection in a garden setting based on soil moisture.

# A Pitch for Grasslands

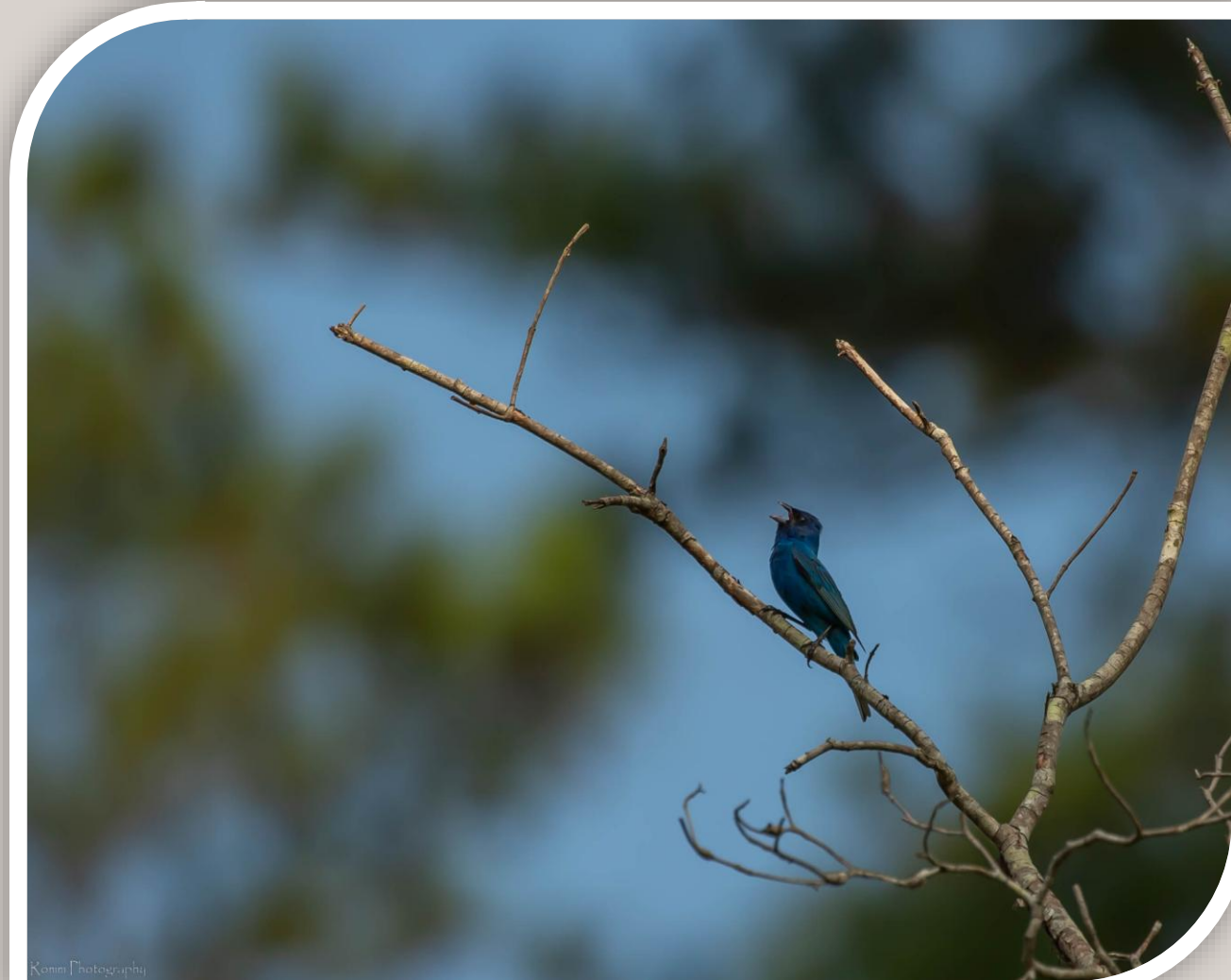
- Many species declines in the US are directly related to grassland declines:
  - Birds
  - Mammals
  - Reptiles and amphibians
  - Pollinators
  - Rare plants
- Hot beds of biodiversity
  - Arguments have been made to include the grasslands of the southeast (particularly those of the Coastal Plain) as a global biodiversity hotspot
  - Substantially higher plant and animal species richness associated with herbaceous communities compared to closed-canopy forested systems **in appropriate settings**
- Contain most of the focal species for pollinator plantings
  - Milkweeds (*Asclepias*), Mountain Mints (*Pycnanthemum*), Goldenrods (*Solidago*), Joe Pye (*Eutrochium*), Ironweeds (*Vernonia*), Sunflowers (*Helianthus*), Black-eyed Susans (*Rudbeckia*), Coneflowers (*Echinacea*), Beebalmes (*Monarda*), Blazing Stars (*Liatris*), Asters (*Symphotrichum*), Tickseeds (*Coreopsis*), Beardtongues (*Penstemon*)



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# Grasslands in the Garden

- Easy to establish and maintain
- Don't take sunlight for granted!
  - Be mindful of if/where you plant trees – they can ultimately shade out diversity
- Many native gardeners already do it:
  - Pollinator gardens
  - Limiting lawn care
    - **Note:** Most lawns do not convert back to native plant communities; requires further management to restore
- Creating plant diversity at any scale
  - Can plant many grassland species very densely, creating opportunities to utilize more species in smaller spaces
  - Viable seeding options available for more cost-effective restoration at larger scales
- Aesthetics
  - Herbaceous communities are visually dynamic – shifting in color and structure throughout the year as plant species grow and flower at different times
  - Plants can easily be bordered, layered, grouped, and otherwise structured intentionally for desired aesthetics
- Accessibility
  - Many widespread and common grassland species available at reliable native plant nurseries



# Managing for Grassland Communities

- Two Major Components:
  - Sunlight
    - Most limiting factor on most landscapes
    - Influenced by disturbance - sunlight becomes limited in closed canopy conditions
  - Disturbance/Ecological Drivers
    - Any process that disrupts plant growth, typically focused on limiting woody plants that would eventually shade out the herbaceous community:
      - Fire (History of naturally occurring fire)
      - Grazing (History of large grazing mammals)
      - Landscaping Options: Mowing, hand-cutting woody stems, physical removal of unwanted plant material, isolated chemical application. Burning (carefully)!
- Grasslands can, and frequently do, exist with overstory trees (savannas) – but too many trees can create conditions unsuitable for diverse herbaceous communities.
  - Deciding what to do with a fully shaded system is entirely up to the landowner and their management goals.
  - Trees and shrubs create important structural components that compliment herbaceous communities, while also providing nutritional benefits to a variety of wildlife



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# Using Rare Plants on Your Landscape

- Many commercially available species are considered rare, threatened, or endangered by the Georgia Department of Natural Resources and/or US Fish and Wildlife Service
  - Populations are monitored and tracked by agency and organizational stakeholders
  - In select cases, genetic lineages are tracked and utilized by conservation horticulturists for outplantings
  - Using these plants in landscaping can create uncertainty for determining origins for populations of rare species (is a population naturally occurring, or was it planted nearby and spread?)
- Please be mindful of the species you are planting and where you are planting them...
  - Ensure that you are using plants that are native to your physiographic region, and, ideally, species that have been recorded from your county



# Closing Thoughts

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- Understand your goals.
- Think about the type of habitat you are creating – what natural communities are you trying to replicate?
- Use plant species appropriate for your location and site conditions.





Questions?