Table 1. Taxa included in this study. The number of taxa in subgroups is given in parentheses. Taxa followed by **†** have no plastome available. ** indicates spikelets will be modeled. *Microscope*indicates pollen of taxa selected for **L**ight Microscopy**, T**ransmission Electron Microscopy, and **S**canning Electron Microscopy.

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| POACEAE 182 + Early-diverging lineages (4) = 186 |
| Early Diverging Lineages:  Ecdeiocoleaceae (2) - *Ecdeiocolea monostachyaMicroscope* **TS***, Georgeantha hexandraMicroscope* **TS**  Flagellariaceae (1) - *Flagellaria indicaMicroscope* **TS**  Joinvilleaceae (1) - *Joinvillea ascendensMicroscope* **TS** |
| Anomochlooideae (2) - *Anomochloa marantoideaSpikeletMicroscope***LTS***, Streptochaeta spicataSpikeletMicroscope* **LTS** |
| Aristidoideae (3) - *Aristida purpureaSpikeletMicroscope* **LTS***, Sartidia, Stipagrostis hirtiglumisMicroscope* **TS** |
| Arundinioideae (5) - *Arundo donax***†***Microscope***TS***, Elytrophorus,* *Monachather,*  *Phragmites australisSpikeletMicroscope* **LTS***, Hakonechloa* |
| Bambusoideae (33) - *Acidosasa,* *Arundinaria giganteaMicroscope* **TS***, Bambusa, Bashania, Buergersiochloa, Chusquea, Cryptochloa, Dendrocalamus, Diandrolyra, Drepanostachyum, Eremitis, Fargesia, Gelidocalamus, Greslania, Guadua angustifoliaMicroscope* **TS***, Hickelia, Indocalamus,*  *Lithachne paucifloraSpikeletMicroscope* **LTS***, Neololeba, Oligostachyum, Olmeca, Olyra, Otatea, Pariana, Phyllostachys, Pleioblastus, Pseudosasa, Raddia brasilliensisSpikeletMicroscope* **L***, Rhipidocladum, Sarocalamus, Sasa, Shibataea, Thamnocalamus* |
| Chloridoideae (20) - *Astrebla,* *Bouteloua curtipendulaSpikeletMicroscope* **LTS***, Bouteloua gracilisSpikeletMicroscope* **L***, Centropodia glaucaMicroscope* **TS***, Chloris, Dactyloctenium, Distichlis, Eragrostis, Eustachys, Halopyrum, Hilaria, Leptochloa, Melanocenchris, Neyraudia, Oxychloris, Sporobolus, Trichoneura, Triodia, Uniola, Zoysia* |
| Danthonioideae (6) - *Chaetobromus,* *Chionochloa, Danthonia spicataSpikeletMicroscope* **LTS***, Rytidosperma, Tenaxia, Tribolium* |
| Micrairoideae (3) - *Eriachne sp.Microscope* **TS***,* Isachne*, Micraira sp.Microscope* **TS** |
| Oryzoideae (10) - *Ehrharta erectaSpikeletMicroscope* **LTS***,* *Humbertochloa, Leersia virginicaSpikeletMicroscope* **L***, Microlaena, Oryza, Potamophila, Prosphytochloa, Rhynchoryza, Streptogyna americanaMicroscope* **TS***,*  *Zizania palustrisMicroscope* **TS** |
| Panicoideae (47) - *Alloteropsis,* *Amphicarpum, Arthraxon, Arundinella, Axonopus, Bothriochloa, Capillipedium, Cenchrus, Centotheca lappaceaSpikeletMicroscope* **LTS***, Chasmanthium latifoliumSpikeletMicroscope,* **LTS** *Coix, Coleataenia, Danthoniopsis dinteriMicroscope***TS***, Dichanthelium latifoliumSpikeletMicroscope* **L***,*  *Dichanthelium oligosanthesSpikeletMicroscope* **L***, Digitaria, Diheteropogon, Echinochloa crusgalliSpikeletMicroscope* **LTS***, Eriochloa, Eulalia, Gynerium sagittatum***†***Microscope***TS***, Hyparrhenia, Imperata, Ischaemum, Iseilema, Lecomtella, Loudetiopsis, Megathyrsus, Oncorachis, Oplismenus, Otachyrium, Panicum virgatumSpikeletMicroscope* **LTS***, Paspalum, Plagiantha, Rottboellia, Saccharum, Setaria, Sorghastrum, Sorghum, Steinchisma, Themeda, Thyridolepis, Thysanolaena, Urochloa, Whiteochloa, Zea, Zeugites pittieriSpikeletMicroscope* **L** *­* |
| Pharoideae (2) - *Leptaspis zeylanicaMicroscope***TS***, Pharus latifoliusSpikeletMicroscope* **LTS** |
| Pooideae (49) - *Aegilops*, *Agrostis, Alopecurus, Ampelodesmos, Anthoxanthum, Avena, Brachyelytrum erectumSpikeletMicroscope* **LTS***, Brachypodium distachyonMicroscope* **TS***, Briza, Bromus, Calamagrostis, Catapodium, Connorochloa, Cynosurus, Dactylis, Deschampsia, Diarrhena obovataSpikeletMicroscope* **LTS***, Drymochloa, Elymus hystrix***†***SpikeletMicroscope* **L***, Elymus virginicus***†***SpikeletMicroscope* **L***, Eriocoma, Festuca paradoxaSpikeletMicroscope* **L***, Festuca subverticillataSpikeletMicroscope* **L***, Gastridium, Glyceria striata***†***Microscope* **TS***, Hesperostipa spartea***†***Microscope* **TS***, Holcus, Hordeum, Lamarckia, Lolium, Lygeum, Melica, Nardus, Nassella, Oryzopsis, Phaenosperma, Phalaris, Phleum, Piptatherum, Piptochaetium, Poa pratensisSpikeletMicroscope* **L***, Poa sylvestrisSpikeletMicroscope* **L***, Puccinellia, Secale, Taeniatherum, Torreyochloa, Trisetum, Triticum, Zingeria* |
| Puelioideae (2) - *Puelia sp. Microscope* **TS***, Guaduella sp. Microscope* **TS** |