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James P. Smith

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FLOWERING PLANT FAMILIES OF THE UNITED STATES GROUPED BY DIAGNOSTIC FEATURES

James P. Smith, Jr.
Professor Emeritus of Botany
Department of Biological Sciences
Humboldt State University

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The focus is on families of plants found in the conterminous United States, including ornamentals. The listing of a family is not meant to imply that every species has that feature. I am using a few family names, such as Liliaceae, Plantaginaceae, and Scrophulariaceae, in the traditional sense, because their limits remain unsettled.

HABITAT	Parasitic on branches Apodanthaceae Santalaceae	Dioscoreaceae Lardizabalaceae Leguminosae Menispermaceae Passifloraceae Rhamnaceae Smilacaceae Vitaceae	Simaroubaceae Staphyleaceae Zygophyllaceae
<p>Aquatic (free-floating) Araceae Lemnaceae Pontederiaceae</p>	<p>GENERAL APPEARANCE</p>	<p>Tendrill-bearing Bignoniaceae Cucurbitaceae Leguminosae Passifloraceae Rhamnaceae Vitaceae</p>	<p>STEMS</p>
<p>Aquatic (fully submerged) Ceratophyllaceae Elatinaceae Potamogetonaceae Ruppiaceae Zosteraceae</p>	<p>Grass-like Cyperaceae Gramineae Juncaceae</p>	<p>Bulbous Amaryllidaceae Dioscoreaceae Oxalidaceae Portulacaceae</p>	<p>Ribbon-like Asparagaceae Polygonaceae</p>
<p>Marine waters Avicenniaceae Cymodoceaceae Hydrocharitaceae Rhizophoraceae Ruppiaceae Zosteraceae</p>	<p>Moss-like Mayacaceae</p>	<p>Trees (cone-like structures) Betulaceae Casuarinaceae Magnoliaceae</p>	<p>Jointed Begoniaceae Caryophyllaceae Commelinaceae Gramineae Piperaceae Polygonaceae Santalaceae Vitaceae Zygophyllaceae</p>
<p>Freshwater Acoraceae Alismataceae Aponogetonaceae Callitrichaceae Elatinaceae Haloragaceae Hippuridaceae Nelumbonaceae Potamogetonaceae Scheuchzeriaceae</p>	<p>Palm-like Asparagaceae Palmae</p>	<p>Woody (compound leaves) Aceraceae Anacardiaceae Capparaceae Cleomaceae Juglandaceae Leguminosae Meliaceae Oleaceae Palmae Rosaceae Rutaceae Sapindaceae</p>	<p>3-sided Cyperaceae</p>
<p>Epiphytes Araceae Bromeliaceae Orchidaceae</p>	<p>Achlorophyllous Convolvulaceae Ericaceae Montiaceae Orchidaceae Orobanchaceae Portulacaceae Santalaceae Scrophulariaceae</p>	<p>5-sided Cucurbitaceae</p>	<p>4-sided Labiatae Scrophulariaceae Verbenaceae</p>
	<p>Epiphytes Bromeliaceae Cactaceae Moraceae Orchidaceae</p>	<p>Succulent Aizoaceae Cactaceae Euphorbiaceae Liliaceae s. l.</p>	<p>5-sided Cucurbitaceae</p>

LEAVES

Conifer-like
Casuarinaceae
Ericaceae
Tamaricaceae

Equitant
Iridaceae

Spiny
Aquifoliaceae
Berberidaceae
Compositae
Papaveraceae
Rhamnaceae

Gland-dotted
Guttiferae
Lauraceae
Myrsinaceae
Myrtaceae
Oleaceae
Plumbaginaceae
Rhizophoraceae
Rutaceae
Vitaceae

Succulent
Aizoaceae
Amaranthaceae
Bataceae
Crassulaceae
Montiaceae
Nyctaginaceae
Portulacaceae

Tubular
Sarraceniaceae

Sticky (insectivorous)
Droseraceae
Lentibulariaceae

PUBESCENCE

Stellate hairs
Hamamelidaceae
Sapotaceae
Sterculiaceae
Tiliaceae

Malpighiaceae hairs
Malpighiaceae
Sapotaceae

Scales
Amaranthaceae
Elaeagnaceae

Stinging/irritating hairs
Euphorbiaceae

Loasaceae
Hydrophyllaceae
Urticaceae

AROMATIC PLANTS

Herbaceous
Aristolochiaceae
Compositae
Geraniaceae
Labiatae
Polemoniaceae
Rutaceae
Saururaceae
Umbelliferae
Verbenaceae
Zingiberaceae

Woody
Calycanthaceae
Canellaceae
Cistaceae
Illiciaceae
Juglandaceae
Lauraceae
Meliaceae
Myricaceae
Myrtaceae
Pittosporaceae
Rutaceae
Schisandraceae
Simaroubaceae

LATEX BEARING

Woody
Caricaceae
Euphorbiaceae
Moraceae
Sapotaceae

Herbaceous
Alismataceae
Apocynaceae
Aponogetonaceae
Araceae
Aristolochiaceae
Bixaceae
Campanulaceae
Compositae
Convolvulaceae
Euphorbiaceae
Haemodoraceae
Nymphaeaceae
Papaveraceae

MUCILAGINOUS PLANTS

Commelinaceae
Malvaceae

Musaceae
Sterculiaceae

INSECTIVOROUS

Droseraceae
Lentibulariaceae
Sarraceniaceae

INFLORESCENCES

Trees with catkins
Betulaceae
Fagaceae
Juglandaceae
Garryaceae
Moraceae
Salicaceae

Umbel
Amaryllidaceae
Araliaceae
Smilacaceae

Compound umbel
Umbelliferae

Spikelets
Cyperaceae
Gramineae
Rafflesiaceae

Thickened spike
Araceae
Bataceae
Amaranthaceae
Piperaceae
Saururaceae

FLOWERS

Perianth 0
Callitrichaceae
Casuarinaceae
Euphorbiaceae
Hippuridaceae
Lemnaceae
Myricaceae
Potamogetonaceae
Ruppiaceae
Saururaceae
Sarcobataceae
Typhaceae

2-merous
Liliaceae
Stemonaceae

3-merous (but a dicot)
Aristolochiaceae

Berberidaceae
Cabombaceae
Limnanthaceae
Polygonaceae
Lardizabalaceae
Menispermaceae

4-merous (trees)
Oleaceae
Platanaceae

4-merous (herbs)
Cruciferae
Liliaceae
Onagraceae
Plantaginaceae
Potamogetonaceae

Spirally-inserted parts
Illiciaceae
Magnoliaceae
Ranunculaceae

Conspicuously bracteate
Acanthaceae
Bromeliaceae
Heliconiaceae
Marantaceae
Musaceae
Nyctaginaceae
Scrophulariaceae
Strelitziaceae
Theaceae

Corona
Apocynaceae
Liliaceae
Passifloraceae

Hypanthium
Cactaceae
Calycanthaceae
Hydrangeaceae
Leguminosae
Lythraceae
Melastomaceae
Myrtaceae
Onagraceae
Rhamnaceae
Santalaceae
Rosaceae
Thymelaeaceae
Turneraceae

Epicalyx
Caryophyllaceae
Dipsacaceae
Lythraceae
Malvaceae
Tiliaceae

Bilabiate corolla
Acanthaceae

Bignoniaceae
Labiatae
Lentibulariaceae
Verbenaceae

Spurred
Balsaminaceae
Orchidaceae
Ranunculaceae
Scrophulariaceae
Tropaeolaceae
Valerianaceae
Violaceae

Petals hairy
Rhizophoraceae

Petals clawed
Caryophyllaceae
Cruciferae
Zygophyllaceae

Flowers unisexual (herbs)

Acoraceae
Apodanthaceae
Araceae
Bataceae
Callitrichaceae
Cannabaceae
Ceratophyllaceae
Cucurbitaceae
Elatinaceae
Eriocaulaceae
Euphorbiaceae
Haloragaceae
Lemnaceae
Smilacaceae
Typhaceae
Urticaceae
Zannichelliaceae
Zosteraceae

Flowers unisexual (woody plants)

Betulaceae
Buddlejaceae
Burseraceae
Ebenaceae
Fagaceae
Garryaceae
Juglandaceae
Moraceae
Myricaceae
Platanaceae
Salicaceae
Sarcobataceae
Simaroubaceae
Sterculiaceae

Stamens (hairy)
Commelinaceae

Stamens Numerous (woody plants)

Cactaceae
Cistaceae
Guttiferae
Hydrangeaceae
Leguminosae
Loasaceae
Magnoliaceae
Malvaceae
Myrtaceae
Theaceae
Tiliaceae

Stamens numerous (herbs)

Cactaceae
Guttiferae
Loasaceae
Malvaceae
Montiaceae
Nelumbonaceae
Nymphaeaceae
Paeoniaceae
Phytolaccaceae
Portulacaceae
Ranunculaceae
Resedaceae

Stamens (in bundles)
Guttiferae
Myrtaceae
Theaceae
Tiliaceae

Stamens (didynamous)
Gesneriaceae
Labiatae
Bignoniaceae
Verbenaceae

Stamens (tetradynamous)
Cruciferae

Stamens (appendaged)
Ericaceae
Melastomataceae
Meliaceae

Staminoids
Acanthaceae
Araceae

Bignoniaceae
Cannaceae
Geraniaceae
Gesneriaceae
Guttiferae
Hamamelidaceae
Lauraceae
Linaceae
Marantaceae
Onagraceae
Primulaceae
Ranunculaceae
Scrophulariaceae
Zingiberaceae

Ovary (stipitate)
Capparaceae
Cleomaceae

Stamens & Carpels (fused)
Apocynaceae
Orchidaceae

FRUITS

Winged
Aceraceae
Celastraceae
Compositae
Juglandaceae
Magnoliaceae
Oleaceae
Sapindaceae
Ulmaceae
Umbelliferae

Spiny/hooks
Altingiaceae
Compositae
Fagaceae
Krameriaceae
Pedaliaceae
Umbelliferae

Caryopsis
Gramineae

Follicle(s)
Apocynaceae
Magnoliaceae
Paeoniaceae
Ranunculaceae
Rosaceae

Legume
Leguminosae

Nut
Amaranthaceae
Betulaceae
Juglandaceae
Onagraceae
Polygalaceae
Polygonaceae
Rhamnaceae

Nutlet
Boraginaceae
Labiatae

Pepo
Cucurbitaceae

Pome
Rosaceae

Schizocarp(s)
Geraniaceae
Malvaceae
Oleaceae
Rutaceae
Sapindaceae
Umbelliferae

Warty/faceted
Araceae
Cyclanthaceae
Moraceae
Pandanaeae
Platanaceae

SEEDS

Arils
Celastraceae
Leguminosae
Marantaceae
Passifloraceae
Polygalaceae
Thymelaeaceae

Caruncles/Elaiosomes
Buxaceae
Euphorbiaceae
Primulaceae
Ranunculaceae
Resedaceae
Violaceae

Apical tuft of hairs
Apocynaceae
Compositae

USEFUL REFERENCES

- Christenhusz, M. J. M. et al. 2017. *Plants of the world*. Kew Publishing & Univ. of Chicago Press. 792 pp.
- Heywood, V. H. et al. 2007. *Flowering plant families of the world*. Firefly Books. 424 pp.
- Heywood, V. H. et al. 2011. *Flowering plants: a concise guide*. Kew Publishing. 288 pp.
- Hickey, M. & C. King. 1988. *100 families of flowering plants*. Second edition. Cambridge Univ. Press. 619 pp.
- Mabberley, D. J. 2017. *Mabberley's plant-book*. Fourth edition. Cambridge Univ. Press. 1102 pp.
- Zomlefer, W. B. 1994. *Guide to flowering plant families*. University of North Carolina Press. 430 pp.