

Pterocarya paradisiaca (Unger) Iljinskaja 1962 (Juglandaceae)

Leaf description

- **morphology:** compound leaves, often large; lateral and terminal leaflets considerably vary in shape; lateral leaflets subsessile (almost no petiole), very variable in size (depending on the former position in the compound leaf), about 30–80 (to 100) mm long and 15–35 (to 40) mm wide; in the fossil record mainly isolated leaflets are found; **organisation:** leaves pinnately compound; **leaf petiole:** (present); **leaf shape:** usually oblong, more or less slender, or somewhat ovate to obovate; **leaf base:** base angle obtuse, shape mainly rounded or cordate, often strongly asymmetric; terminal leaflets base and shape more symmetric; **leaf apex:** apex angle acute, shape somewhat acuminate; **margin:** toothed; densely simple serrate, sinus acute, apex almost acute to slightly rounded; **1°-vein framework:** primary veins pinnate, midvein straight to somewhat bent near the base; **2°-vein framework:** secondaries semicraspedodromous, distinctly thinner than the midvein, originating in wide angles (almost perpendicular) from the midvein, running in wide curves towards the margin, looping and sending numerous veinlets towards the margin; intersecondaries present; **3°-vein framework:** tertiaries percurrent, straight to sinuous, higher order veins regular polygonate, areoles well developed, 3–4 sided.
 - **cuticle:** hypostomatic; adaxial and abaxial cuticle with straight to coarsely undulate anticlines forming polygonal cell outlines, adaxial cuticle thicker than abaxial one; **abaxial cuticle:** abaxial one rarely preserved; stomatal complexes anomocytic, stomata oval in shape, very variable in size about 15–35 µm long; outer front cavity spindle-shaped, cuticular ledges more or less well cutinised, slender; aperture slit-like; trichome bases of peltate trichomes present, roundish to elliptical (above veins), simple, poral rim thick, well cutinised, about 15–20 µm in diameter; trichome head peltate, disc-shaped, circular, up to 100 µm in diameter, composed of numerous radially arranged cells.
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Paleocology

- **habitat:** alluvial soils, riparian forests
 - **vegetation type:** mainly in deciduous forests
 - **life form:** tree
 - **foliage persistence:** deciduous leaves
 - **flower ecology (pollination):** wind-pollinated (anemophilous)
 - **fruit ecology (dispersal):** wind-dispersed (anemochorous)
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Stratigraphy / Distribution

- **stratigraphy:** Middle Miocene to Pliocene
 - **distribution:** Europe, e.g. Middle Miocene: Wackersdorf (Germany), Swoszowice (Poland); Upper Miocene: Auenheim (Germany), Lohnsburg (Austria), Bełchatów (Poland); Pliocene: Auenheim (Germany), Domanski Wierch (Poland).
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Miscellaneous

- **synonyms:** –

- **modern relationship:** *Pterocarya fraxinifolia* (POIR.) SPACH (Caucasian wingnut), but East-Asian species may also be closely related.
- **remarks:** Grossmorphologically, *Pterocarya* leaflets may resemble those of *Fraxinus*. In *Pterocarya* (and other Juglandaceae) the tertiary veins are percurrent, contrary to *Fraxinus*, in which the tertiaries form a polygonate network. Fossil fruits of *P. limburgensis* C. & E.M. REID co-occur in Auenheim (Germany, Pliocene) likely deriving from the same plant as the leaflets of *P. paradisiaca*.

27 macroscopic leaf traits are stored in *Digiphyll*

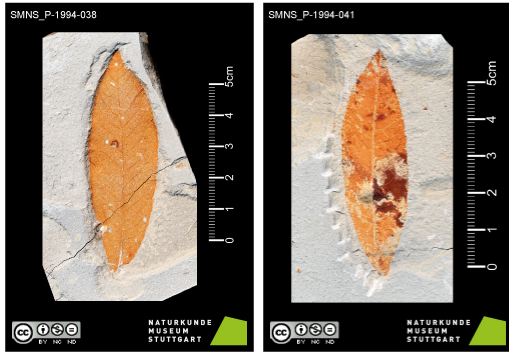
#	trait code	trait: charcters state
1	A-1.2	petiole: present
2	A-2.2	leaf organisation: compound
3	A-2.2.2	leaf organisation, compound: pinnately
4	A-3.2	leaf shape: elliptic
5	A-3.3	leaf shape: ovate
6	A-3.4	leaf shape: oblong
7	A-4.2	leaf base angle: obtuse
8	A-5.1	leaf base shape: without basal extension
9	A-5.1.1	leaf base shape, without basal extension: cuneate (straight)
10	A-5.1.2	leaf base shape, without basal extension: rounded
11	A-6.1	leaf apex angle: acute
12	A-7.2	leaf apex shape: acuminate
13	A-8.2	leaf margin: toothed
14	A-8.2.2	leaf margin, toothed: dentate
15	A-9.1.1	leaf teeth, order number of teeth: simple order (first order)
16	A-9.2.1	leaf teeth, tooth density: dense
17	A-9.3.1	leaf teeth, tooth size: small
18	A-9.4.1	leaf teeth, tooth apex shape: acute
19	A-9.5.1	leaf teeth, tooth sinus shape: acute
20	B-1.1	primary vein framework: pinnate
21	B-2.1	secondary vein framework: 2° veins reach margin
22	B-2.1.2	secondary vein framework, 2° veins reach margin: semicraspedodromous
23	B-3.2	intramarginal vein: absent
24	B-4.1	intersecondaries: present
25	B-4.2	intersecondaries: absent
26	B-5.1	tertiary vein framework: percurrent
27	B-5.1.3	tertiary vein framework, percurrent: mixed

For a detailed description of the leaf traits see menu *Manuals*.

? microscopic leaf traits are stored in *Digiphyll*

comming soon

Fossil images



References

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