

Bur Oak *Quercus macrocarpa*

Fagaceae—Beech family

by Tom Reaume © 2010 Nature Manitoba

Grant: **Manitoba** 

A **deciduous tree** 5–50 m tall with a spreading crown; in gravelly to moist woodlots, parklands, prairies, bottomlands, bluffs, hillsides, and dry to riparian slopes; **wood** is very hard and grows slowly; **monoecious**.

● **FLOWERS** green to yellowish green, blooming April–June; **inflorescence** of unisexual catkins; **male catkins** to c. 6 cm long by 5 mm wide, hanging, 1–4 per bud; **rachis** hairy, c. 0.5 mm wide, base naked; **male flowers** sessile, 3–4 mm wide by 1–2 mm tall, alternate along the rachis; **calyx** 4- to 7-lobed, total width 2.5–3 mm from below, the lobes c. 1 mm long, hairy on the outside, often dark tipped, the tube light green and hairless; **stamens** usually 5–8, erect to spreading; **filaments** 0.5–1.5 mm long, whitish, thin, attached near base of anther, spreading to ascending from center of flower; **anthers** 1–1.5 mm long by c. 1 mm wide by c. 0.5 mm thick, ascending to spreading, light yellowish green; **pollen** yellow; **peduncles** erect, 1–1.5 cm long by c. 1 mm wide by c. 0.5 mm thick, lengthening up to 2.2 cm in fruit; **female flowers** in clusters of 1–5, each 1–2 mm wide and long, sessile; **calyx** 5- or 6-lobed, hairy, green with reddish tips; **styles** distinct, greenish yellow; **stigmas** thick, 3-lobed, together 1–1.5 mm wide.

● **FRUIT** a nut (acorn), 1–3 per peduncle, 1-seeded, maturing the 1st year; **cup** deciduous, covering one-half or more of the acorn, light brown to gray, 1–5 cm long by 1–6 cm wide, rough from the scaly, imbricate involucre and a fringed margin with 2–10 mm long soft awns, these shorter in the northern range; **nuts** smooth, brown to grayish, 1.5–5 cm long by 1–4 cm wide, hard and round, the base whitish tan, blunt at the apex, good crop every 2–3 years; **nutlets** round, not shiny, medium brown to tan, with shallow furrows, 11–20 mm long by 9–18 mm wide, enclosed in a papery brown cover.

● **LEAVES** alternate, simple, shallowly to deeply lobed; **blades** 5–30 cm long by 3.5–15 cm wide, apical lobe rounded, the upper (ventral) surface shiny and glabrous, lighter green below (dorsally) with appressed stellate hairs on the blade and raised veins, turns yellowish in the autumn; **petioles** yellowish green, 6–30 mm long, round, slightly hairy; **stipules** paired, filiform, 5–7 mm long, tapered, turning brown and falling early.

● **TRUNK** with scaly, gray furrows 3–5 cm deep; **lower branches** may partially rest on the ground, upper branches ascending; **new twigs** tan at the top of the tree, finely hairy; **older twigs** brownish gray, less hairy, often with corky soft ridges or wings; **lenticels** oval, often obscured; **winter buds** alternate, 2.5–6 mm long by c. 3 mm wide, blunt, the terminal cluster light gray to reddish brown, finely hairy, scales numerous, margins ciliate; **leaf scars** wide, oval; **bundle scars** obscured by hairs; **dbh** 20–150 cm.

● **RANGE:** (**CAN**) 5 provinces; (**USA**) 31 states; Great Plains to east, native, cold-tolerant. The only oak tree in and native to Manitoba and Montana



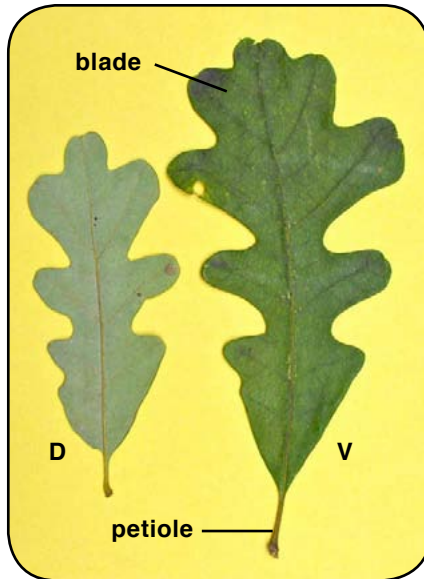
Bur Oak with a dbh of 36 cm and canopy width of 10 m; Winnipeg, Manitoba



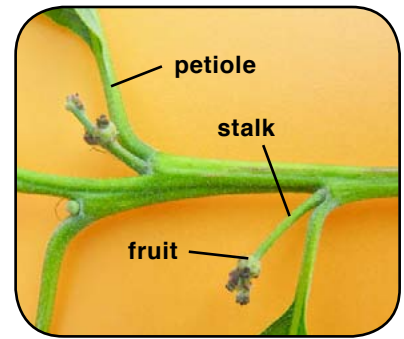
Bur Oak in early spring with a dbh of 36 cm and canopy width of 10 m. It is the only oak tree species in the province of Manitoba



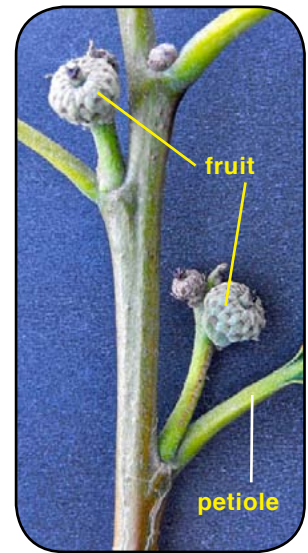
Deeply furrowed gray bark of Bur Oak trunk with flat wide ridges, 60 cm in diameter



Leaf shapes variable; blade on right is 7 cm wide and showing the darker, dull ventral side



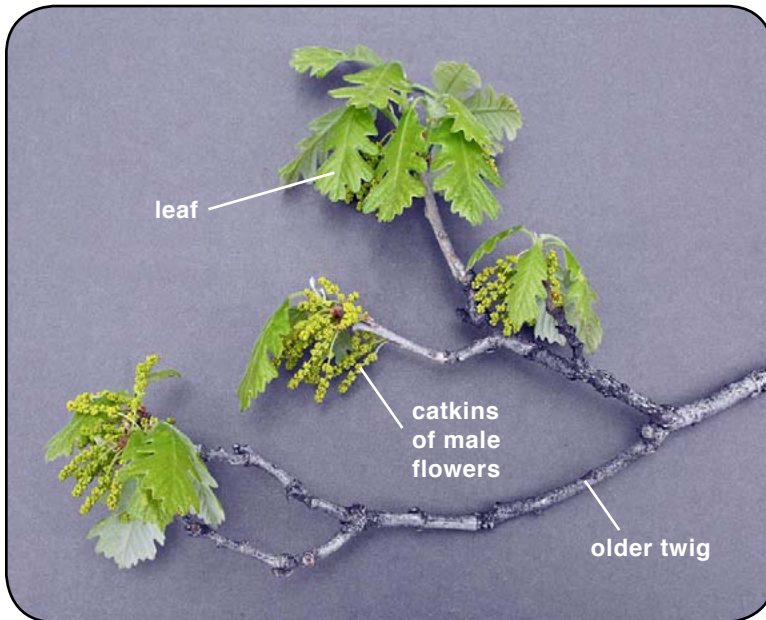
Young stalked fruit 3 mm wide



Young stalked fruit 6 mm wide by early July



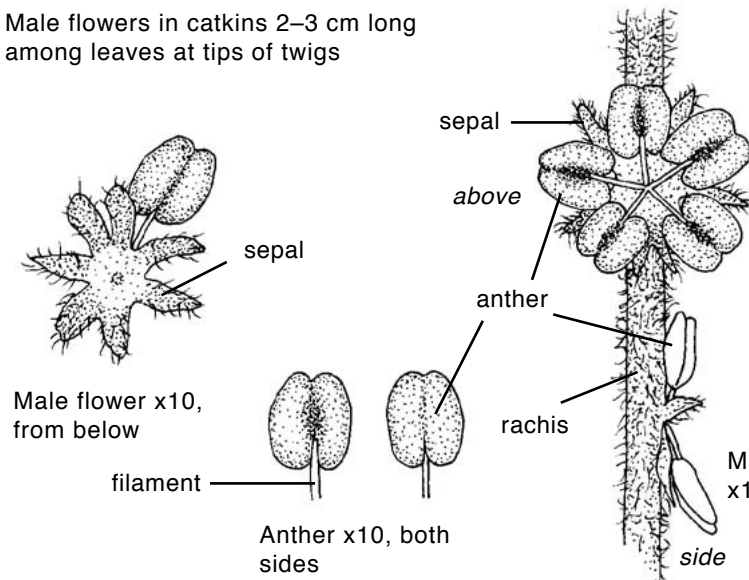
Winter buds at tip of twig

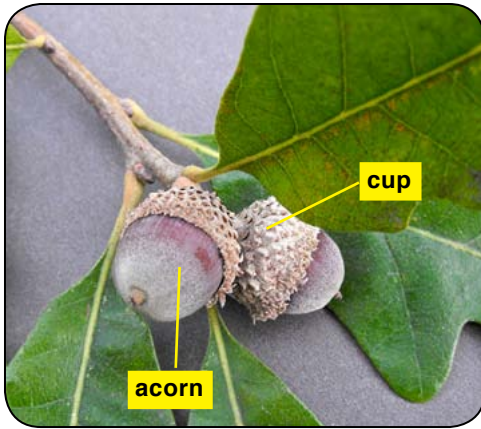


Male flowers in catkins 2–3 cm long among leaves at tips of twigs

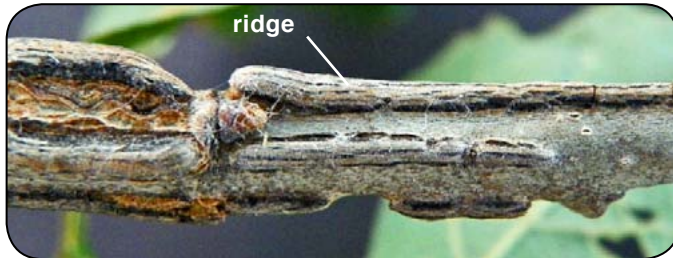
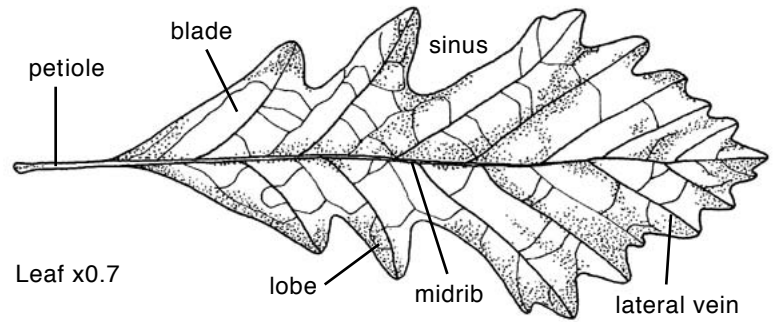


Male catkins 3–5 cm long hanging from new twig; a few flowers are open in Winnipeg, Manitoba





Two acorns, each c. 15 mm wide attached to end of twig among leaves



Corky ridges on twigs



Inside of cup, 15 mm wide, acorn removed



Two rough cups each 10 mm tall, acorns removed



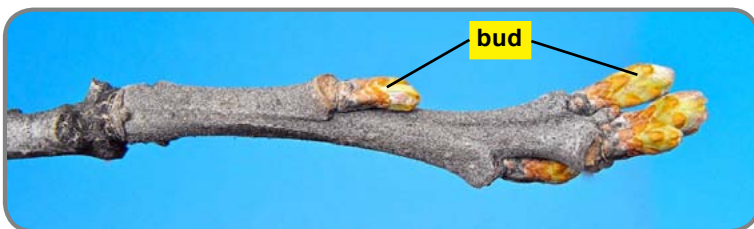
Acorn (nut) on left 15 mm wide; cups removed



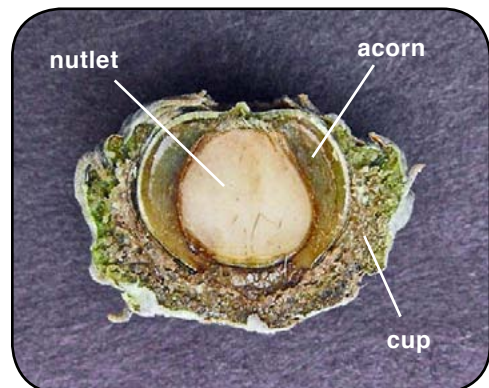
Two acorns (nuts) in middle, 2 nutlets on outside, each partially eaten by a squirrel



Green acorn 2.5 cm wide



End of new twig 5 cm long with buds expanding at apex in spring in Winnipeg, Manitoba



Cross-section of green acorn 1.5 cm wide