For some species, an upside to inbreeding

by World-Science.net

BreedÂ-ing beÂ-tween close kin is thought to be fraught with evÂ-oÂ-luÂ-tionÂ-ary pitÂ-falls: it tends to sadÂ-dle offÂ-spring with danÂ-gerÂ-ous levÂ-els of geÂ-netÂ-ic deÂ-fects. But evÂ-oÂ-luÂ-tionÂ-ary theÂ-oÂ-ry preÂ-dicts that unÂ-der some cirÂ-cumÂ-stances, inÂ-breedÂ-ing may have benÂ-eÂ-fits that outÂ-weigh the costs. ReÂ-searchÂ-ers say have found evÂ-iÂ-dence to back this idea.

In some speÂ-cies, â€œclose inÂ-breedÂ-ing may be exÂ-plained by relÂ-aÂ-tives beÂ-ing betÂ-ter parÂ-ents,â€• Timo ThÃ¼nÂ-ken and colÂ-leagues of the UniÂ-verÂ-siÂ-ty of Bonn, GerÂ-maÂ-ny, wrote in the Feb. 6 isÂ-sue of the reÂ-search jourÂ-nal CurÂ-rent BiÂ-olÂ-oÂ-gy. PelÂ-viÂ-caÂ-chroÂ-mis taeÂ-niÂ-aÂ-tus. NaÂ-tive to lowÂ-er NiÂ-geÂ-ria and CamÂ-eÂ-roon in West AfÂ-riÂ-ca, slightÂ-ly over three inches long as an adÂ-ult, and vaÂ-rÂ-iÂ-aÂ-ble in colÂ-or and markÂ-ings, it is a harÂ-dy and fast-reÂ-proÂ-ducÂ-ing fish.

Although they didnâ€™t reÂ-comÂ-mend this parentÂ-ing straÂ-teÂ-gy for humans, the reÂ-searchÂ-ers noted the beÂ-neÂ-fiÂ-cial efÂ-fect among an AfÂ-riÂ-can cichÂ-lid fish, PelÂ-viÂ-caÂ-chroÂ-mis taeÂ-niÂ-aÂ-tus. These fish, in which both parÂ-ents help care for young, preÂ-ferred unÂ-faÂ-milÂ-iar, close kin rathÂ-er as mates, the biÂ-olÂ-oÂ-gists said.PaÂ-renÂ-ting costs enÂ-erÂ-gy, and kinÂ-ship tends to faÂ-vor coÂ-opÂ-erÂ-aÂ-tion. InÂ-deed, obÂ-serÂ-vaÂ-tions of this fish showed that reÂ-latÂ-ed parÂ-ents â€œwere more coÂ-opÂ-erÂ-aÂ-tive and inÂ-vested moreâ€• in parÂ-entÂ-ing, the sciÂ-enÂ-tists wrote. The reaÂ-son, they added, is likely that a male matÂ-ing with his sisÂ-ter enÂ-sures that his young reÂ-ceive exÂ-tra copies of his genesâ€”from their moÂ-ther. That would proÂ-mote his own evÂ-oÂ-luÂ-tionÂ-ary sucÂ-cess.So inÂ-breedÂ-ing isÂ-nâ€™t uniÂ-formÂ-ly bad, ThÃ¼nÂ-ken and colÂ-leagues wrote: evÂ-oÂ-luÂ-tionÂ-arÂ-ily speakÂ-ing, â€œan inÂ-diÂ-vidÂ-ual has to trade off the costs against the benÂ-eÂ-fitsâ€• of it.The main drawback is that inÂ-breedÂ-ing can brÂ-ing toÂ-gethÂ-er couÂ-ples with the same gene deÂ-fects. The muÂ-taÂ-tions are ofÂ-ten harmÂ-less in them beÂ-cause there are back-up copÂ-ies of the genes. But inÂ-breedÂ-ing parÂ-ents can pool the muÂ-taÂ-tions in offÂ-spring, overÂ-whelmÂ-ing the backÂ-up sysÂ-tems.There was no evÂ-iÂ-dence of this ocÂ-curÂ-ring in the fish, ThÃ¼nken and colÂ-leagues wrote, for unÂ-clear reaÂ-sons. PerÂ-haps good paÂ-renÂ-ting made up for bad genes, they specÂ-uÂ-latÂ-ed. AnÂ-othÂ-er posÂ-siÂ-bilÂ-iÂ-ty, they wrote, is a posÂ-siÂ-ble self-corÂ-rectÂ-ing mechÂ-anÂ-ism tied to inÂ-breedÂ-ing. TheÂ-oÂ-rists beÂ-lieve that reÂ-peatÂ-ed inÂ-breedÂ-ing may lead to die-offs of badÂ-ly muÂ-tatÂ-ed inÂ-diÂ-vidÂ-uals. That â€œpurgesâ€• the popÂ-uÂ-laÂ-tionâ€™s bad genes, stavÂ-ing off geÂ-netÂ-ic disÂ-inÂ-teÂ-graÂ-tion.