Introduction
Zoological parks aim to improve the care and welfare of their animals. An animal’s welfare is the integration of several inputs, including the individual’s physiological, psychological and physical conditions. Numerous methods have been developed to assess animal welfare, most of which focus on either the physiology, behaviour, or general health of the focal animal(s) (Hill & Broom 2009; Melfi 2009; Whitham & Wielebnowski 2013). The effectiveness of any single method, however, may be limited, as each reflects only a portion of an animal’s needs and perceptions (Swaisgood 2007; Barber 2009). Additionally, animal care decisions may be constrained by interpreting animal experiences from a professional, yet inherently subjective, human perspective that may not accurately reflect the experiences of the animals themselves (Veasey et al 1996; Rivas & Burghardt 2002). Therefore, new methodologies to assess and improve animal welfare are highly sought after (Barber 2009; Whitham & Wielebnowski 2013), particularly those that allow the animals to reveal their perspectives (Melfi 2009).

To improve animal care and improve welfare, zoos increasingly incorporate aspects of a species’ natural history and behavioural ecology (Forthman & Ogden 1992). As animals in the wild often invest considerable time and energy in acquiring resources (Herbers 1981), zoos typically provide enrichment opportunities to mimic more natural foraging scenarios for their animals. For example, providing access to live fish significantly increased performance of natural hunting behaviours (Shepherdson et al 1993; Mellen et al 1998; Bashaw et al 2003), and supplemental carcass feeding reduced stereotypic behaviours (Bond & Lindburg 1990; McPhee 2002), for captive felids. When given the option, captive grizzly bears (Ursus arctos horribilis) spent more time actively manipulating objects to acquire food compared to when it was freely available (contra-freeloading; McGowan et al 2010). Hiding food throughout the exhibit also increased foraging time and decreased stereotypic behaviour for chimpanzees (Pan troglodytes; Baker 1997), walrus (Odobenus rosmarus; Kastelein & Wiepkema 1989), and several species of bear (Carlsted et al 1991). Furthermore, implementation of an unpredictable feeding schedule increased foraging behaviour and activity for sun bears (Helarctos malayanus; Schneider et al 2014), fennec foxes (Vulpes zerda; Watters et al 2011) and chimpanzees (Bloomsmit & Lambeth 1995). These