

Supplementary Table 1. Overview of characteristics of the pack members in Safaripark Beekse Bergen. The three different age-sex cohorts are depicted in different colours: males born in 2012 (blue), females born in 2013 (yellow) and males born in 2013 (red).

Name animal	Date of birth	Age*	Sex	Rank before pack separation	Rank after pack separation
Tuli	18-10-2009	6.1	F	1	1
Alu	23-11-2012	3.0	M	11	5
Funi	23-11-2012	3.0	M	12	6
Tsela	23-11-2012	3.0	M	13	7
Imani	14-12-2013	1.9	F	14	2
Neema	14-12-2013	1.9	F	15	3
Faizah	14-12-2013	1.9	F	16	4
Katungi	14-12-2013	1.9	M	2	9
Faraji	14-12-2013	1.9	M	3	1
Naasir	14-12-2013	1.9	M	4	2
Khari	14-12-2013	1.9	M	5	5
Nuru	14-12-2013	1.9	M	6	6
Zuberi	14-12-2013	1.9	M	7	4
Zarif	14-12-2013	1.9	M	8	7
Kimoni	14-12-2013	1.9	M	9	3
Tuma	14-12-2013	1.9	M	10	8

* Age at first day of behavioural observations, 9 November 2015

Supplementary Table 2. Ethogram that was used in this study on the social relationships and social behaviour of captive African wild dog packs (Derix et al., 1993; van Hooff and Wensing, 1987; McCreery 2000).

Category	Behaviour	Description
Proximity	Being together	When two or more dogs are in close proximity with a maximum distance of two adult dog lengths, which roughly corresponds to 2 m.
	Being alone	When a single dog is more than two meters away from any other dogs.
Aggressive behaviour	Threat*	The actor shows a facial display in which the mouth is more or less opened with its lips pulled up, the teeth are bared, and the forehead and nose are wrinkled. Eyes are fixed on the recipient and the tail is straight away from the body. Growling is often heard and locomotion is typically absent. The position of the mouth and ears may vary. The body position is tense; pilo-erection is often evident.
	Snapping at	The actor lunges with a bite movement towards the recipient.
	Attack	The actor suddenly approaches the recipient at full speed, often followed by aggressive physical contacts, such as biting.
	Bite*	The actor bites the recipient, mostly in the legs.
Affiliative behaviour	Greeting	The actor approaches the recipient with a low position of the head, legs somewhat bent and ears folded backwards. The mouth is more or less opened so that the teeth are showing (grin) and the actor is licking the snout of the recipient. Squeaking sounds are made constantly during greeting (giggle). The actor will receive the same ritual from the recipient.
	Approach*	The actor is walking towards the recipient, diminishing the distance between the two individuals, while looking at the recipient.
	Follow	The actor walks in the trail of another dog keeping it at a constant distance of two meters maximum.
	Snout-snout contact*	The actor brings his nose close to or pushes it towards the nostrils of the recipient.
	Licking face*	The actor licks nose, lips and mandibular region of the recipient.
	Fur nibbling	The actor is biting softly and licking the fur of another dog, mostly from tail to head.
	Social play	All types of interactions between two or more dogs in which the dogs are in relaxed neutral position while they chase, fight, bite, roll over or jump up each other in a playful manner.
Dominant behaviour	Head/paw on	The actor places its head or paw on the back of the recipient for a longer than momentary amount of time.
	Marking over	The actor secretes a small amount of urine over a previous urine mark with one or both feet lifted of the ground. This behaviour is usually shown by the alpha-male, while the alpha-female usually initiates the making by urinating first.
	Stalking	The actor stands or slowly approaches the recipient with the head and neck in a straight line below the shoulder, the ears folded back, the tail relaxed or in a straight horizontal line and without losing eye-contact with the recipient.
	Lifting	The actor pushes with his head towards the ventro-lateral side of the recipient which lifts the recipient's back quarters from the ground.
Submissive behaviour	Active submission	The actor actively seeks contact with the recipient by approaching it in a crouched manner with curved back and bent legs, while the tail is curled down, often wagging, while the ears are folded back. From this position the animal tries to make contact by licking its snout.
	Passive submission	The actor lies on its side or half on its back, exposing chest and belly towards the recipient. The tail is drawn in between the hind legs and the ears are flattened backwards. The actor remains completely motionless.
	Go down	The actor pushes itself down in front of the recipient, but remains on its belly.
	Retreat*	Locomotion oriented away from the recipient after the actor was approached by the recipient.
Body posture	High posture	Behaviour pattern that is characterised by a high position of the head, erect tail, ears kept up and legs and back straight.
	Low posture	Behaviour pattern that is characterized by a low position of the head, tail is bent downwards or between the legs, ears folded backwards and legs somewhat bent.

	Neutral posture	Position that is relaxed and intermediate to high and low posture
<i>Stress-related behaviour</i>	Yawn	Slowly and deep inhalation through forced and involuntary opening of the mouth and jaws.
	Body shake	A short shake of the entire body
	Scratch	Individual scratches itself by (repeatedly) moving its paw across the body in a rapid movement.

* Six behaviours, i.e. threat, bite, approach, snout-snout contact, lick face and retreat (indicated by an asterisks), were recorded in combination with one of three distinct body postures: 'low', 'neutral' and 'high' posture