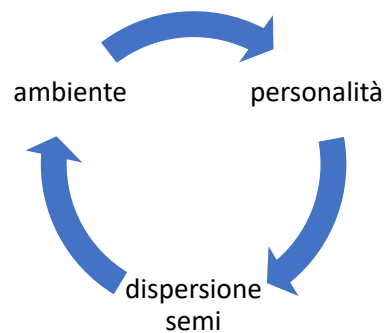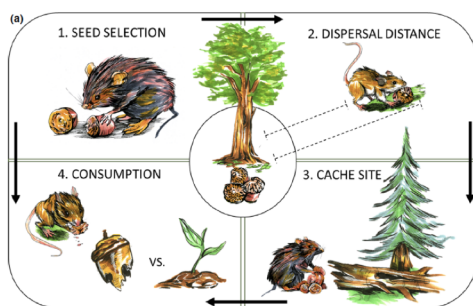# Avvicinandoci alle figure dell'ecologo e del conservazionista
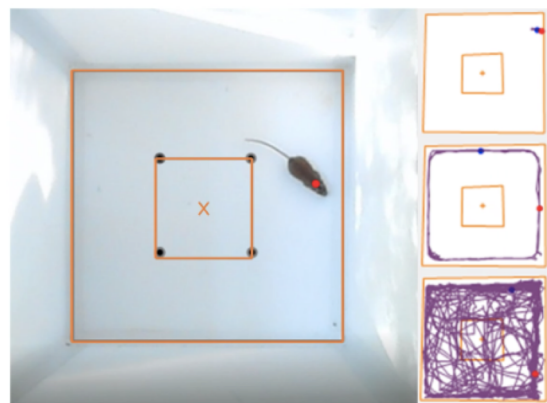
Esperimenti sul campo a larga scala su piccoli mammiferi

- Effetti della personalità su predazione e dispersione dei semi
- Interferenze dei cambiamenti di uso del suolo su personalità e predazione/dispersione dei semi
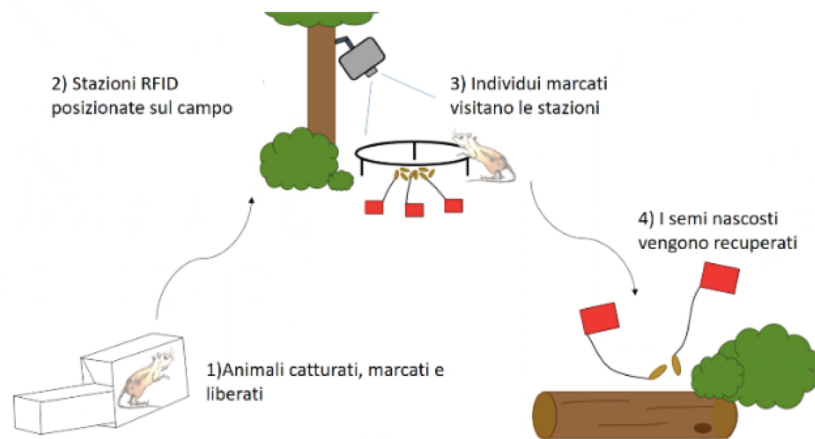

Avvicinandoci alle figure dell'ecologo e del conservazionista

- Open field test
  - Attività / tendenza esplorativa
  - Evitamento area centrale

Avvicinandoci alle figure dell'ecologo e del conservazionista

2) Stazioni RFID posizionate sul campo

3) Individui marcati visitano le stazioni

4) I semi nascosti vengono recuperati
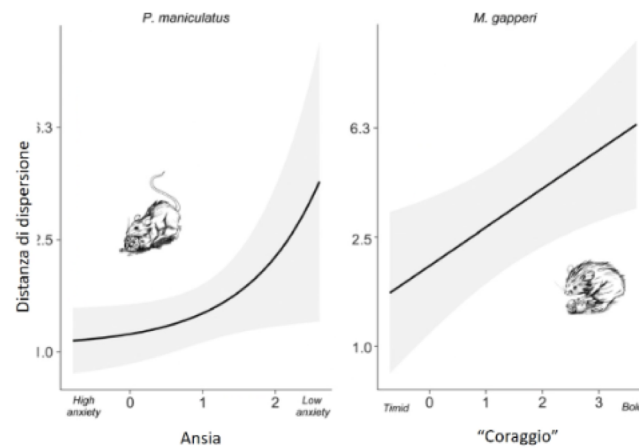
1)Animali catturati, marcati e liberati

Avvicinandoci alle figure dell'ecologo e del conservazionista

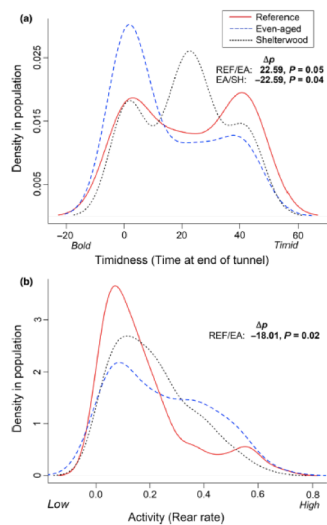Brehm, Mortelliti et al. 2019 Ecology Letters

Avvicinandoci alle figure dell'ecologo e del conservazionista

Avvicinandoci alle figure dell'ecologo e del conservazionista

anthropogenic habitat modifications shift the distribution of personalities within a population, by increasing the proportion of bold, active, and anxious individuals and in-turn affecting the potential survival and dispersal of seeds

https://www.youtube.com/watch?v=NqlXnbIrKTE&t=1s&ab_channel=TheUniversityofMaine

CAN YOU TELL A MONKEY'S MOOD FROM ITS FACE?

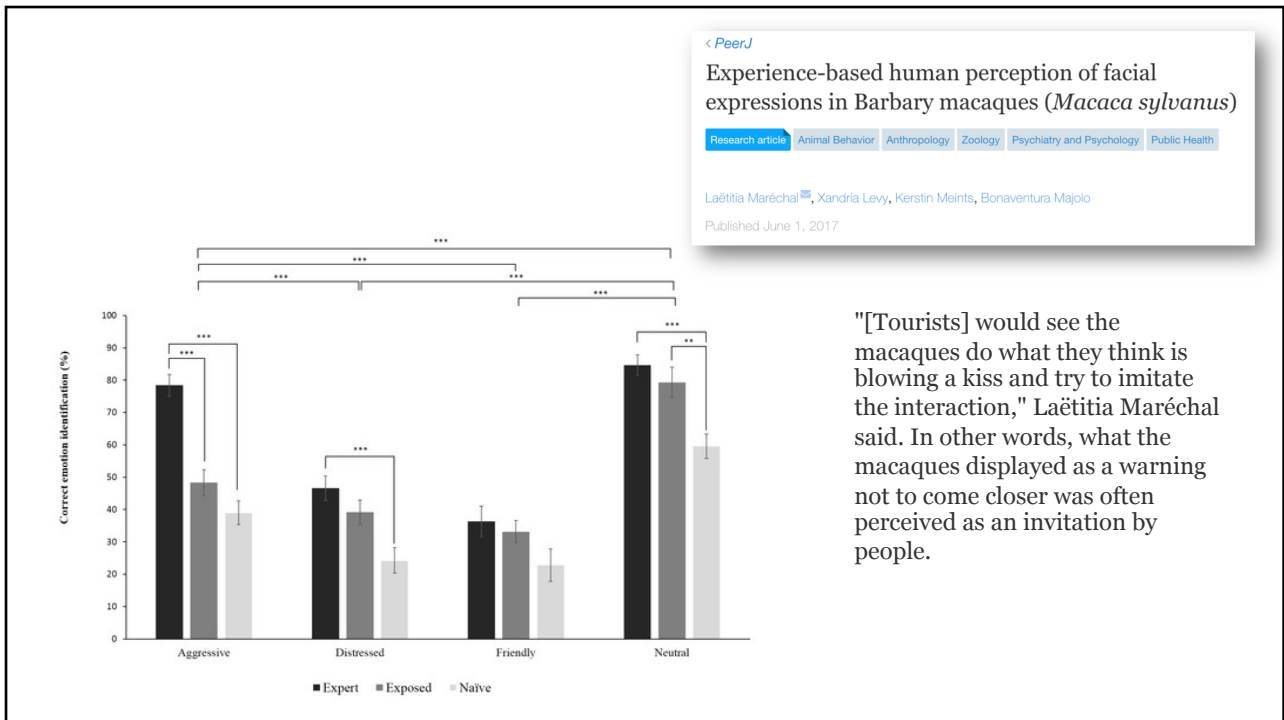Click on the projected screen to start the question

(1–2) 'Aggressive' or 'Threat' face: In the first picture (1), the eyebrows are raised, the animal stares intently and the mouth is open showing the teeth. In the second picture (2), the eyebrows are raised, the animal stares intently and the lips are protruded to form a round mouth;

(3–4) 'Distressed' or 'Submissive' face: In the first picture (3), the mouth is widely open, and the animal is yawning. Yawing can be related to distress and anxiety in primates (Maestripieri et al., 1992). In the second picture (4), the corners of the lips are fully retracted and the upper and lower teeth are shown;

(5) 'Friendly' or 'Affiliative' face: In picture (5), the mouth is half open and the lips slightly protruded. This expression involves a chewing movement and clicking or smacking of the tongue and lips;

(6) 'Neutral' face: In picture (6), the mouth is closed and the overall face is relaxed.

https://peerj.com/articles/3413/#supplemental-information

‹ PeerJ

Experience-based human perception of facial expressions in Barbary macaques (*Macaca sylvanus*)

Research article Animal Behavior Anthropology Zoology Psychiatry and Psychology Public Health

Laëtitia Maréchal, Xandria Levy, Kerstin Meints, Bonaventura Majolo
Published June 1, 2017

"[Tourists] would see the macaques do what they think is blowing a kiss and try to imitate the interaction," Laëtitia Maréchal said. In other words, what the macaques displayed as a warning not to come closer was often perceived as an invitation by people.

The universality hypothesis

six basic emotions (anger, disgust, fear, happiness, sadness, and surprise) should be expressed by similar facial expressions in close phylogenetic species such as humans and nonhuman primates

- Funzione
  - intraspecifica
  - interspecifica

collera paura disgusto

sorpresa felicità tristezza

UN PO' DI STORIA
DARWIN e EMOZIONI

### Espressioni facciali e riconoscimento emozioni

- Le espressioni del viso che usiamo per esprimere le emozioni sono innate o sono apprese?
  - Già Darwin aveva riscontrato che persone appartenenti a culture diverse sembravano usare le stesse espressioni facciali per le varie emozioni
- Molti dei gesti usati in alcune culture hanno un significato opposto in un'altra cultura
  - Anche le espressioni facciali sono quindi dipendenti dalla cultura?

UN PO' DI STORIA
DARWIN e EMOZIONI

Ekman & Friesen (1967) hanno chiesto ai membri di una tribù isolata della Papua Nuova Guinea di esprimere un certo sentimento con la mimica facciale

• Che faccia faresti se....

A) E' arrivato un tuo amico e sei felice

B) Il tuo bambino è morto

C) Sei arrabbiato e pronto a combattere

D) Vedi un maiale morto da molto tempo
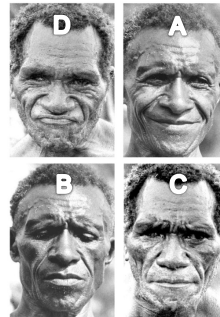
UN PO' DI STORIA
DARWIN e EMOZIONI

– Le espressioni facciali usate per le emozioni sono innate
• In realtà un certo ruolo del riforzo sociale esiste. Studi sulle espressioni dei cechi dimostrano che le loro espressioni facciali sono meno marcate
– Ma sono una prerogativa solo della specie umana?

# L'espressione delle emozioni nell'uomo e negli animali

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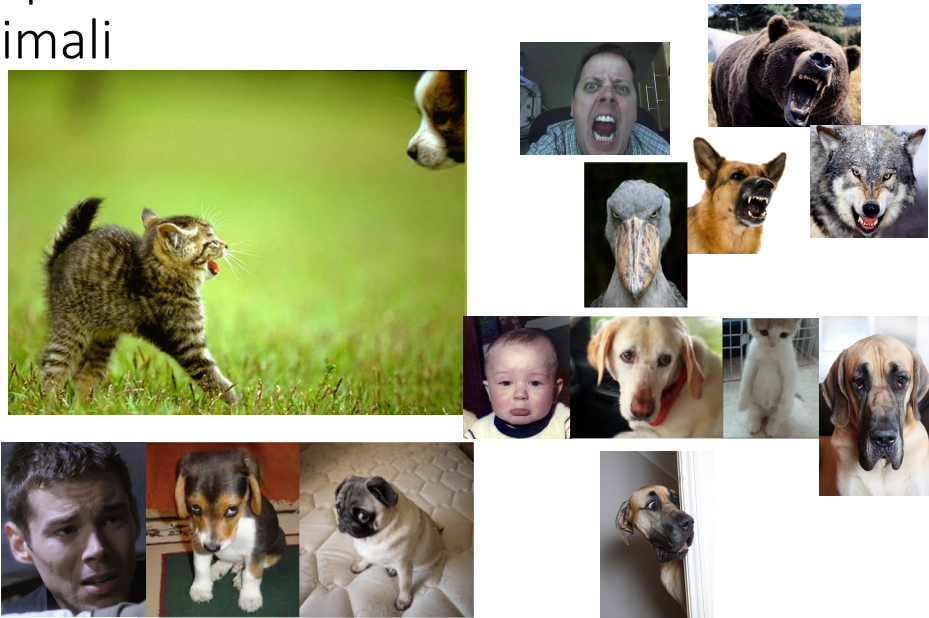
- Capacità di riconoscere posture e manifestazioni poiché siamo imparentati
- Continuità tra le specie: emozioni come oggetti naturali/universali; programma psico-fisiologico ed evoluzione (es. lacrimazione)
- A cosa servono le emozioni?
  - Probabilmente si sono evolute per aiutare i membri della stessa specie o gruppo a comunicare
  - Far sapere il proprio stato emotivo ad un altro organismo può evitare interazioni pericolose
    - Il cane che ringhia ci sta segnalando che non è il caso di andargli vicino

SISTEMA PSICOLOGIA
RICONOSCIMENTO EMOZIONI

- 31 cani (13 diverse razze) esplorano prima e più a lungo la regione degli occhi rispetto a aree di naso e bocca
- Caratteristiche specie-specifiche di certe espressioni attirano la loro attenzione (es. la bocca del cane minaccioso)
  - Bias attentivo
  - Cani minacciosi = tempi >
  - Uomo minaccioso = evitamento
- La percezione delle espressioni si basa sull'analisi globale
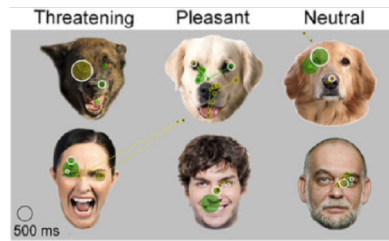
Somppi, et al., 2016

FACS Facial Action Coding System

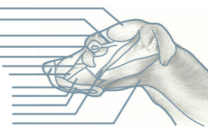«the overall face was relaxed» come si può stabilire?

J Nonverbal Behav (2007) 31:1–20

Chimpanzee
Low wrinkled forehead
Textured brow ridge

Nasal channel
Subnasal furrow

Prognathic lower face
Vertical lip wrinkles
Slight lip eversion

Common
Glabellar
Nasion
Eye-fold cover
Lower eye-lid furrow
Infra-orbital triangle

Human
Large forehead
Eye brow hair
Scleral contrast
Nasal bridge

Nasiolabial furrow
Cheek fat

Philtrum
Everted lipsBony chin boss

ANIMAL FACS
An anatomical tool to study facial movements in animals

Home   ChimpFACS   MaqFACS   GibbonFACS   OrangFACS   DogFACS   CatFACS
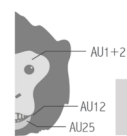EquiFACS   AnimalFACS in Research   NetFACS

What is AnimalFACS?
(Facial Action Coding System)

The **Animal Facial Action Coding System** is an observational scientific tool, allowing for an objective measurement of facial movement in non-human animals, allowing for the analysis of facial behaviour in animals.

By studying FACS you can learn how to identify specific and subtle muscle movements in the face, allowing for the study of facial communication without subjection categorising whole-expressions.

Each FACS coding scheme has been adapted from the original human-based FACS system, allowing researchers to directly compare muscle-movements between humans and animals, and between animals of different species.

AU1+2
AU12
AU25

The 7 AnimalFACS systems

At present, the FACS system has been adapted to 7 different species. All of which have manuals that are freely accessible through this website.

ChimpFACS : A FACS system adapted for use with common chimpanzees (*pan troglodytes*)

**MaqFACS** : A FACS system adapted for use with rhesus macaques (*macaca mulatta*)

GibbonFACS : A FACS system adapted for use with hylobatid species

OrangFACS : A FACS system adapted for use with Orangutans (*pongo spp.*)

DogFACS : A FACS system adapted for use with domestic dog (*Canis lupis familiaris*)

CatFACS : A FACS system adapted for use with cats (*Felis catus*)

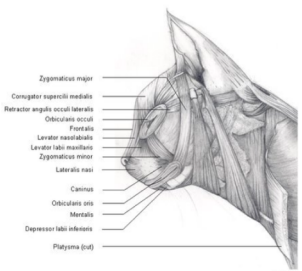**EquiFACS** : A FACS system adapted for use with domestic horses (*Equus ferus caballus*)

https://animalfacs.com/

CatFACS
(A **FACS** system adapted for the domestic cat)

What CatFACS **is**:

The Cat Facial Action Coding System (**CatFACS**) is a scientific observational tool for identifying and coding facial movements in cats. The system is based on the facial anatomy of horses and has been adapted from the original FACS system used for humans created by Ekman and Friesen (1978). The CatFACS manual details how to use the system and code the facial movements of cats objectively. The manual and certification is freely available (see below).

More info regarding the development of this FACS system can be found here:
Caeiro, Cátia C., Anne M. Burrows, and Bridget M. Waller. "Development and application of CatFACS: Are human cat adopters influenced by cat facial expressions?." Applied Animal Behaviour Science 189 (2017): 66-78.
APA

What CatFACS **isn't**:

CatFACS is <u>not</u> an ethogram of facial expressions, and does not make any inference about any underlying emotion or context causing the movement. Instead this is an objective coding scheme with no assumption about what represents a facial expression in this species. It will not explicitly teach you cat facial expressions.

https://animalfacs.com/

- Videoclip 1. Pigs in a positive emotional state while consonant music is playing.
- Videoclip 2. Pigs in a negative emotional state while dissonant music is playing.
- Videoclip 3. Pigs during break period. Calm, relaxed and positively occupied states_2.
- Videoclip 4. Pigs during final period. Calm and relaxed states.

Qualitative Behavioral Assessment (QBA)

- QBA is based on the observation of behavioral signs that reflect animal's emotional state, rather than unfounded projections of human emotions (see Rutheford et al., 2012; Wemelsfelder et al., 2000).
- Rutheford et al., (2012) demonstrated that QBA is sensitive to the putative experimental alteration of emotional state, achieved through pharmacological manipulation. They demonstrated that observers, who were blind to the experimental treatment, were able to distinguish between pigs that had been given either saline or Azaperone, strongly supporting the biological validity of QBA.

Ⓐ

Assessing the 'whole animal': a free choice profiling approach

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*Animal Biology Division, Scottish Agricultural College Edinburgh
†Biomathematics and Statistics Scotland, University of Edinburgh
‡Department of Clinical Veterinary Science, University of Bristol

The qualitative assessment of animal behaviour summarizes the different aspects of an animal's dynamic style of interaction with the environment, using descriptors such as 'confident', 'nervous', 'calm' or 'excitable'. Scientists frequently use such terms in studies of animal personality and temperament, but, wary of anthropomorphism, are reluctant to do so in studies of animal welfare. We hypothesize that qualitative behaviour assessment, in describing behaviour as an expressive process, may have a stronger observational foundation than is currently recognized, and may be of use as an integrative welfare assessment tool. To test this hypothesis, we investigated the inter- and intraobserver reliability of spontanous qualitative assessments of pig, *Sus scrofa*, behaviour provided by nine naïve observers. We used an experimental methodology called 'free choice profiling' (FCP), which gives observers complete freedom to choose their own descriptive terms. Data were analysed with generalized Procrustes analysis (GPA), a multivariate statistical technique associated with FCP. Observers achieved significant agreement in their assessments of pig behavioural expression in four separate tests, and could accurately repeat attributing expressive scores to individual pigs across these tests. Thus the spontaneous qualitative assessment of pig behaviour showed strong internal validity under our controlled experimental conditions. In conclusion we suggest that qualitative behaviour assessment reflects a 'whole animal' level of organization, which may guide the intepretation of behavioural and physiological measurements in terms of an animal's overall welfare state.
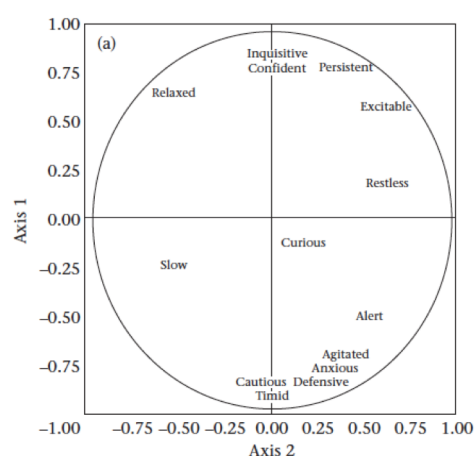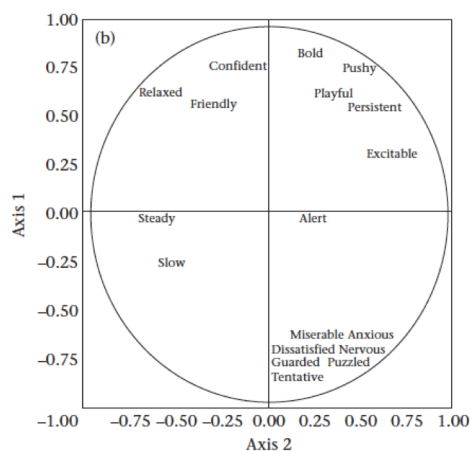
Table 2. Merged assessments 1 and 2: terms (two for each of the nine observers) that showed the highest positive and negative correlations with axes 1 and 2 of the consensus profile

|	Positive correlations	Negative correlations
Axis 1		
Merged assessment 1	Confident (7), playful (3), domineering (2), confrontational (1), bold (1), persistent (1), interactive (1), relaxed (1), affectionate (1).	Timid (3), wary (2), apprehensive (2), cautious (2), uncertain (1), tentative (1), unsure (1), suspicious (1), restrained (1), tense (1), nervous (1), anxious (1), scared (1).
Merged assessment 2	Confident (4), bold (2), interactive (2), assertive (1), domineering (1), confrontational (1), aggressive (1), persistent (1), inquisitive (1), playful (1), brisk (1), relaxed (1), affectionate (1).	Timid (4), wary (2), tense (2), cautious (1), uncertain (1), tentative (1), unsure (1), suspicious (1), evasive (1), avoiding (1), nervous (1), frightened (1) defensive (1).
Axis 2		
Merged assessment 1	Excitable (4), persistent (3), alert (2), pushy (2), lively (1), active (1), energetic (1), confrontational (1), aggressive (1), restless (1), frustrated (1).	Relaxed (6), calm (3), confident (2), friendly (1), comfortable (1), unconcerned (1), slow (1), steady (1), distracted (1), vocal (1).
Merged assessment 2	Excitable (4), alert (3), lively (1), frisky (1), brisk (1), energetic (1), persistent (1), active (1), aggressive (1), pushy (1), domineering (1), confrontational (1), compulsive (1).	Relaxed (4), calm (3), friendly (2), confident (1), comfortable (1), unconcerned (1), slow (1), steady (1), timid (1), vocal (1), interactive (1), agitated (1).

Values in parentheses give the number of observers using that term. See text for details.

Qualitative Behavioral Assessment (QBA)

- horses (Fleming et al., 2013); pigs (Rutheford et al., (2012); Wemelsfelder et al., (2001)); buffalos (Napolitano et al., 2012); sheep (Phythian et al., 2013); dogs (Arena et al., 2017); and elephants (Pollastri et al., 2021)

- there are also studies in which QBA scores correlated significantly with behavioral and other health indicators (e.g., Rousing and Wemelsfelder, 2006; Phythian et al., 2016) or in which physiological parameters supported the behavioral expression differences interpreted by observers in various conditions (e.g., Stockman et al., 2011) advocating QBA as a reliable and valid method to assess animal behaviour and emotional states.

Qualitative Behavioral Assessment (QBA)

- QBA is a validated and reliable method, widely accepted in the scientific world for evaluation of animal emotions.

- It has been extensively applied not only in the scientific literature (recognized peerreviewed journals), but also in the industry. As an example, QBA has been officially included in the Welfare Quality and AWIN protocols, broadly used worldwide, as an evaluation tool of the emotional state of animals as part of the welfare evaluation
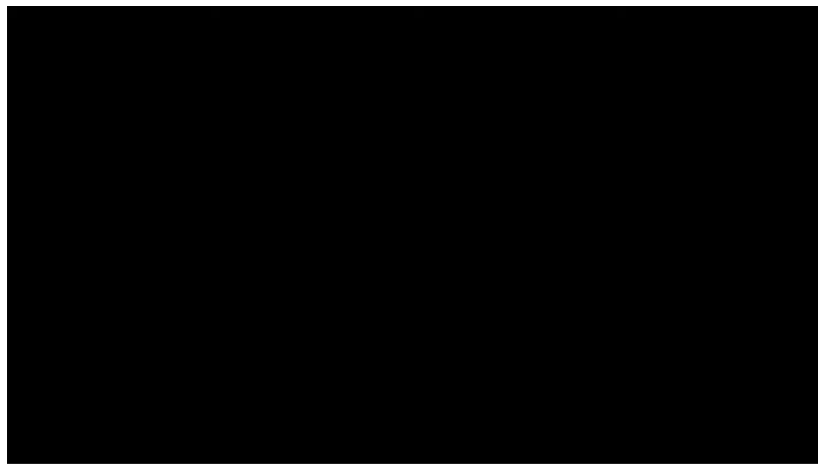
https://www.youtube.com/watch?v=wJvQwAWwpWE&t=481s&ab_channel=AnimalBehaviour

As stated by Wemeslfelder and colleagues (2000) (p. 208) "Some critics may insist that irrespective of how successful qualitative assessment may be as a research tool, its dependence on human perception and language renders it 'subjective', and devoid of biological reality. However, to place the human observer (the 'subject') fundamentally out with 'objective' reality is untenable, if only for evolutionary reasons. Human beings, including scientists, are part of reality and act upon it. There is no neutral, 'perspective-free' ground; the human observer determines at which level of organization measurements are taken and interpreted conceptually (Nagel, 1986). Thus, qualitative behavioural measurement does not differ fundamentally from standard physiological and behavioural measurement in its dependence on human perception and linguistic ability, but merely reflects a different assessment vantage point. There is no reason in our view to assume that qualitative assessment, any more than other levels of assessment, is hindered by deep insurmountable 'anthropomorphic' bias (cf. Ingold, 1994; Cenami Spada, 1997; Crist, 1998). That qualitative assessment is based on human perception does not make it a study of human perception. Human observers and their perceptive powers are used as an assessment tool, and the relevant question is the reliability of that tool."