

BIO-ACOUSTIC STIMULATION WORKSHEET (one TRANSECT of 5 points) FOR BROADER ACTIVITIES OF GOJAGE (Golden Jackal informal study Group in Europe) for 2012 period; Monitoring stages April 2012 October 2012

CS ^G	GPS (E/N) & ALTITUDE	ANSWER ^M	VEGETATION ^M	AGRICULTURE ^M	WATER ^{2G} SOURCE	VILLAGE ^{2G}	METEO ^M
	decimal degrees World Geodetic System 1984 (WGS84) Ex: E28,55567 N44,48595 ALT 475m	Ex: 2X3G (3 groups at 2 ^o call)	(1) open ground (2) field layer (3) scrub (4) woodland (5) wetland	(1) agriculture use (intensively) (2) abandoned and pasture landscape (extensively)	distance (m) from the source & type	distance (m) from the closest human settlement	(1) Windy (2) No Wind (3) Open sky (4) Cloudy (5) PP ³ YES (including for 3 days before) (6) No PP
1		1X 2X 3X 4X 5X					
2		1X 2X 3X 4X 5X					
3		1X 2X 3X 4X 5X					
4		1X 2X 3X 4X 5X					
5		1X 2X 3X 4X 5X					

CS = Calling Station; ^MData for Multivariate Analysis; ^GData which can be geo-processed with GIS (coordinates are necessary); ¹Observe and add data about agriculture type as suggested by CERVINKA & SALEK; ²Parameters proposed during Azimut 2011 and Anubis 2011 stages in Romania (CIROVIC, SZABO, GIANNATOS, BANEAE); ³PP: during Anubis 2011 we observed that precipitation (and other weather conditions) in the days before and at the fieldwork moment (GARGAREA, GIANNATOS, KROFEL, BANEAE, CERVINKA) may influence the responses to acoustic stimulation. (GOJAGE property www.goldenjackal.eu)

Acoustic monitoring and spotlighting (GIANNATOS 2005, KROFEL 2008): an acoustic (play-back) method will be used to determine the presence of territorial groups of jackals. **Calling stations** pre-selected in suitable habitats at distances that enabled us to cover entire study area.

- The linear distance between successive trial calling stations will be set at maximum 4 km, depending on terrain and available road network.
- Selected according to topographical characteristics in order to optimize sound transmission. From each calling station a recorded group yip-howl by two to four jackals is broadcasted (records made in Hungary and Slovenia).
- Megaphone 50 Watt Etrion MR 800gr in connection with mobile phone or portable computer.
- Each broadcasted howl lasts for 30 seconds and is followed by a 3 minute pause. If there is no response, this set of broadcast and pause has to be repeated for four times on each calling station (in total 5 calls), which totalled to overall session time of approximately 15-20 minutes.
- When jackals responded to the broadcast determine the direction of howling jackals using a compass and roughly estimated the distance. In order to avoid doubling mark each response direction on topographical maps.
- Geographical coordinates and altitude of locations are recorded by GPS. Also note the time needed for jackals to respond and the number of howling jackals (single or a group). After response we also scan the area with a spotlight at calling stations located in open habitats. We always begin with the survey at least one hour after sunset and finish at least one hour before sunrise.

For the calculation of jackal territorial group's densities we will follow GIANNATOS *et al.* (2005), who determined the maximum human hearing distance on windless nights from a vantage point in an open terrain with no background noise at 1.8 to 2 km. Therefore the effective area for an audible response from jackals was estimated to be between 10.18 to 12.57 km² (πR^2 = surface area). If sound transmission is hindered in one or more directions due to topographical features, we will subtract the corresponding share of the effective area to one quarter of the area, using 7.64 to 9.43 km² for the calculation of effective covered area. It will be assumed that only territorial groups of jackals will respond to the broadcasted howls and that each response direction coincides with a different territorial group, GIANNATOS *et al.*, (2005).