

# Israel Wildlife Disease Surveillance Program (IWDS)



- Wildlife surveillance workshop 16-20th December 2013
  - J P Duff- AHVLA Diseases of Wildlife Scheme
  - William B. Karesh – EcoHealth Alliance
  - Paolo Calistri- IZS
- prioritization exercise using a validated risk analysis method - online questionnaires to 86 relevant experts



## Wildlife Pathogen Surveillance in Israel to Inform Human and Animal Infectious Disease Control: a Prioritization Exercise

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### ABSTRACT

In December 2013, as a part of the establishment of the 'Israel Wildlife Diseases Surveillance' (IWDS) Program, building on the 'One Health' approach for human, livestock and wildlife disease control, a prioritization exercise using a validated risk analysis method was carried out by distributing online questionnaires to 86 relevant experts. The results were subsequently presented in the prioritization of a wildlife surveillance workshop, compiling the risk assessments of 51 pathogens by human, livestock, wildlife and total risks. The endemic diseases, brucellosis, rabies and foot and mouth disease ranked as the highest risks. The Risk Analysis method was used successfully in the prioritization exercise. Furthermore, the results combined surveillance priorities of relevant stakeholders and will be used in planning and implementing the national surveillance program.

**Keywords:** Surveillance; Wildlife; Pathogen; Israel; One Health; Risk Analysis; Surveillance Program.



**Table 2:** Scoring system framework based on the 'Rapid risk analysis' method (12)

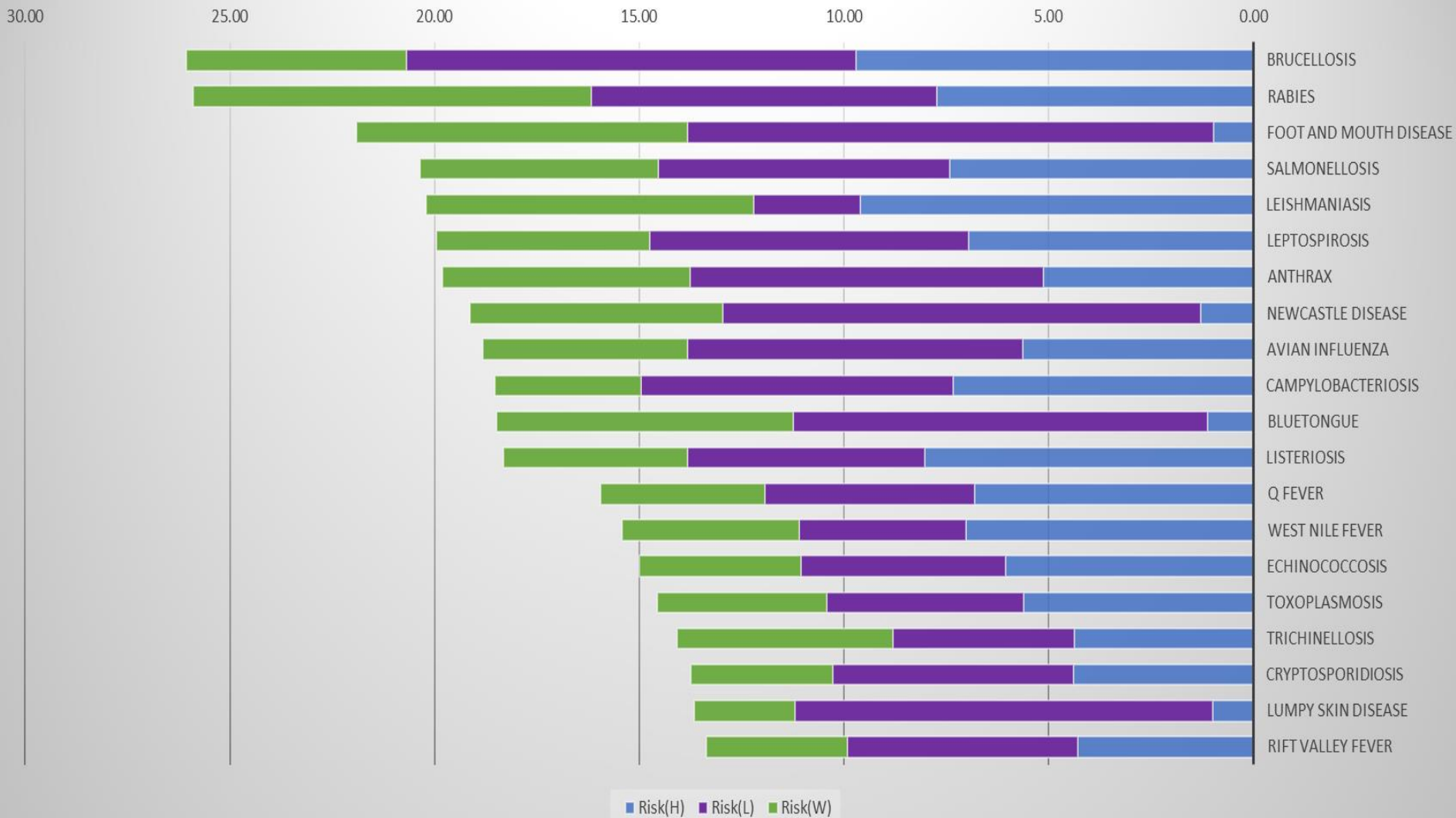
Probability of entry to Israel (POE)	Likelihood of spread (LOS) and Consequences of spread (COS)					
	Humans		Livestock		Wildlife	
	LOS (1-4)	COS (1-4)	LOS (1-4)	COS (1-4)	LOS (1-4)	COS (1-4)
1- Known to be Present	1- Extremely unlikely	1- Minor	1- Extremely unlikely	1- Minor	1- Extremely unlikely	1- Minor
0.9- Likely to be present but undetected	2- Moderately unlikely	2- Moderate	2- Moderately unlikely	2- Moderate	2- Moderately unlikely	2- Moderate
0.8- Very likely to enter	3- Moderately likely	3- Major	3- Moderately likely	3- Major	3- Moderately likely	3- Major
0.6- Moderately likely to enter	4- Extremely likely	4- Severe	4- Extremely likely	4- Severe	4- Extremely likely	4- Severe
0.4- Moderately unlikely to enter						
0.2- Very unlikely to enter						



# Rapid risk assessment



Total Risk



- National program that involves three ministries: **Agriculture, Health** and **Environmental Protection**, conducted by Nature and Parks Authority.
- Routine/General Surveillance – passive and targeted
- Sample sources:
  - Control measures - wild canids and wild boars
  - Wildlife hospital- mainly wild birds
  - Breeding centers- wild herbivores
  - Found-dead wildlife
  - Capture for research purposes
  - Wildlife's samples bank



## Wild Canids

- Rabies
  - Virus detection
  - Ab detection
  - Oral vaccination
- Distemper
- Leptospirosis
- Trichinellosis


## Wild boars and Herbivores

- Leptospirosis
- FMD
- PPR
- Q-fever

## Bats and Rodents

- Leptospirosis
- Q-fever

## Wild birds

- Newcastle
  - HPAI
  - West-nile
- 

Taxon	Specimen #	Tests #
Wild birds (53.4%)	10755	22885
Wild carnivores (24%)	4837	15972
Wild herbivores (13.6%)	2737	12288
Wild boars (5.7%)	1154	6343
Bats (1.6%)	315	201
Wild rodents (1.4%)	280	296
Reptiles, amphibians, fish(0.3%)	65	99
<b>Total</b>	<b>20,143</b>	<b>58,084</b>

Taxon	Wild birds	Wild boars	Wild herbivores	Wild carnivores	Bats	Wild rodents	Total tests
Rabies		23	44	4463	53	24	4607
FMD		740	1145				1885
PPR		526	1052				1578
HPAI	8667			3			8670
Newcastle	8715						8715
WNF	1597		9	1			1607
Avian Salmonella	299						299
Q-Fever		604	1031	114	18	33	1800
Brucellosis		241	511				752
Leptospirosis		3579	5135	4720	47	120	13601
Bovine tuberculosis		176	232	113			521
Internal parasites in wild canids				763			763
Canine distemper				1166			1166



- Since 2006
- Ultra deep freeze - 80 C<sup>0</sup>
- 12,000+ samples- sera, whole blood, tissues, feces and external parasites
- Future use:
  - Unknown pathogens-modern methods
  - Genetics
  - Epidemiological researches - retrospective



# Sample data management



menu



מסך קיצורי דרך



התחלת סקר  
דילול בע"ח

Veterinary  
sampling



התחלה

## Veterinary sampling →

taxon	טקסון [חובה]	חזיר בר
Sample ID	סימון הדיגמה [חובה]	4405851
Speciman marking	סימון פרט	
gender	זוווג בע"ח [חובה]	נבחרו 1
age	גילאי בע"ח [חובה]	נבחרו 1
reason for sampling	סיבת הדיגום [חובה]	נבר
circumstances	תיאור נסיבות הדיגום	זכר בן 7
Health condition	מצב בריאותי [חובה]	נבחרו 1
Body score	מצב גופני [חובה]	נבחרו 1
carcas condition	מצב הגוס	



## Veterinary sampling →

Death/injury reason

Sample type

pictures

Location- coordinates

Samples taken

Pregnancy/ lactating

Origin: wild / captiv

Measurements: neck, weight



End



- <https://vet.parks.org.il/explore2/#/home/?center=30.811035485513745,35.24601353991692&zoom=7>



# Example 1- Leptospirosis



התוכנית לניטור מחלות בחיות בר בישראל

[274061:800440] [35.7907:33.2982]

שיתוף מפה

סינון ומחקר

**נדגם ע"י (41 קבוצות)**  
 אאאמיר טאסקי ביהדס ברחטנו חייד אברים (2) ליהונעו רוני קינג (3) חוסי לו

**משפחה (8 קבוצות)**  
 איילי (חזירים) (635) כלביים (1547) ופריים (1)

**מין (16 קבוצות)**  
 חזיר בר (635) יחמו עז צבנו תן זהוב (1452)

**קבוצת בדיקות**  
 בקטרילוגיה (2690)

**סוג בדיקה (9 קבוצות)**  
 MAT לפטוספאיקטובאלום ברטיסלריפטויהרדו (נטראסובפומנה קניקולה)

**חזרו תוצאות**  
 true (2690)

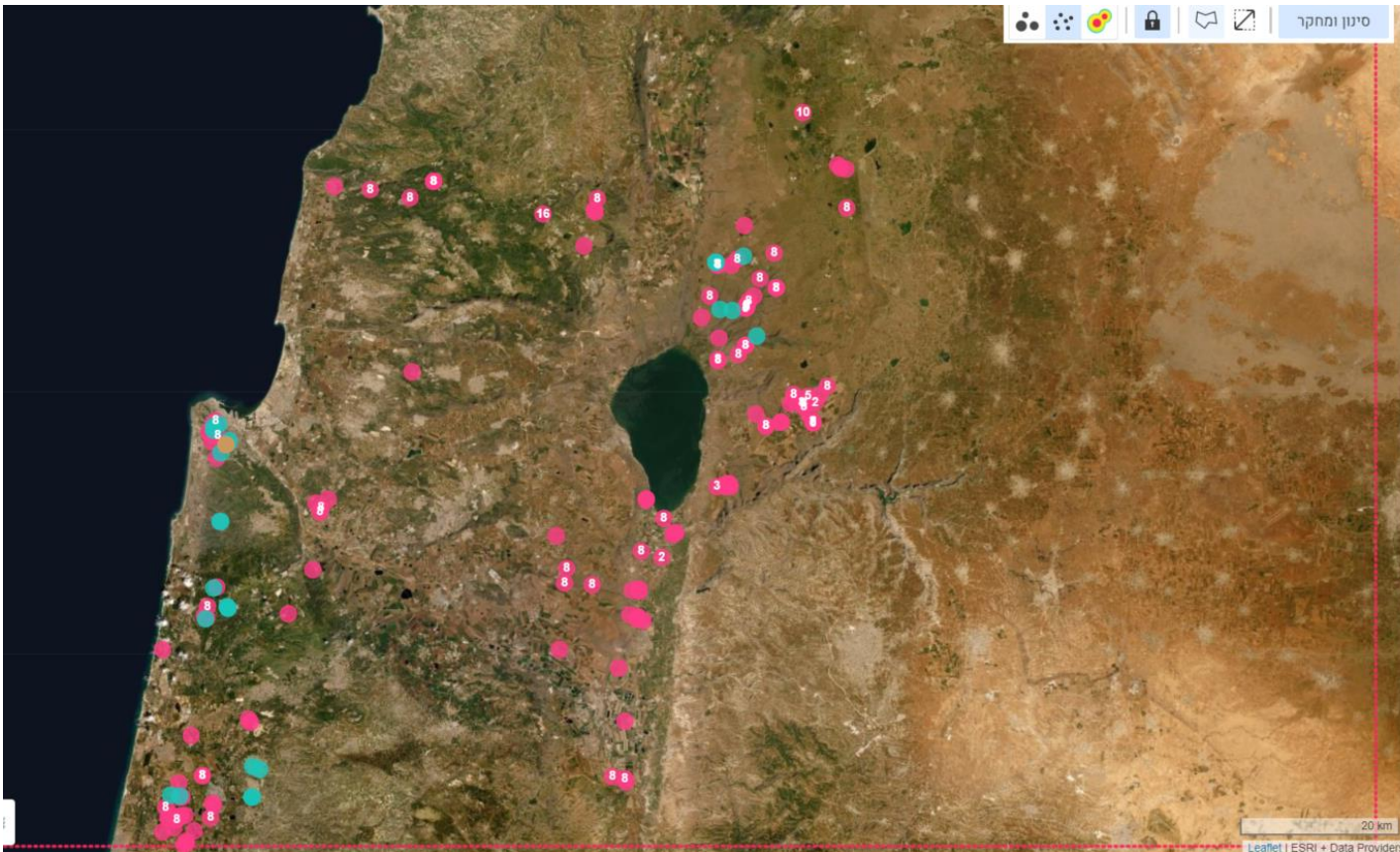
**תוצאות (6 קבוצות)**  
 הצג ערני 0

- שלילי 2632
- ללא ערך 1023
- אחר 1020
- חיובי 48
- לא בוצע 28
- חשוד 10

**חזה במערכת טימי (370 קבוצות)**  
 [ללא ערך] 79

20 km  
 Leaflet | ESRI + Data Providers

# Example 1- Leptospirosis



סיטון ומחקר

מין (16 קבוצות)  
זן: חזיר בר (635) | יחמוו עז צבג (1452) | תן זאהוב (1452)

קבוצת בדיקות  
בקטריולוגיה (635)

סוג בדיקה (9 קבוצות)  
MAT לפטוספיר איקטרו באלום (ברטיסילגריפטי הרדנו (טראסונפומונה קניקולו

חזרו תוצאות  
true (635)

תוצאות (6 קבוצות)  
הצג ערכי 0

- שלייל 595
- אחר 124
- [ללא ערך] 52
- חיובי 34
- חשוד 6
- לא בוצע 3

מזהה במערכת טימי (93 קבוצות)  
אגוד: 16 [ללא ערך]

תוצאות:

מין:



# Example 2- Q-fever

**Mountain gazelle** 23 צבי ישראלי

**Wild boar** 13 חזיר בר

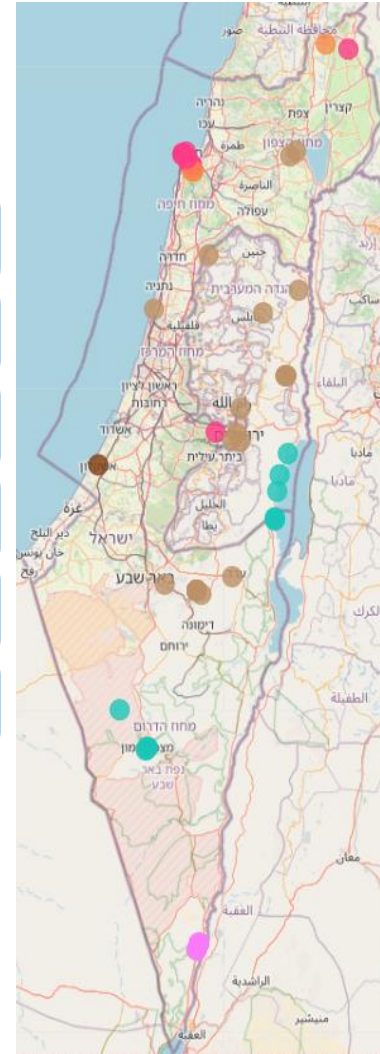
**Ibex** 11 יעל נובי

7 ראם ערבי

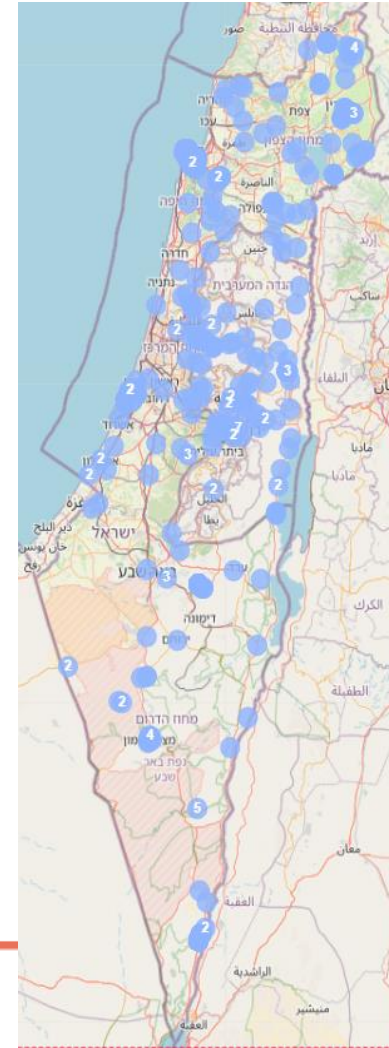
5 יחמור פרסי

1 דורבן הודי

3ב' – בדיקות חיוביות/חשודות



3א' – כלל הבדיקות





# Example 2- Q-fever









ISRAEL NATURE  
AND PARKS  
AUTHORITY



**Thank you for listening**