



VBORNET

"European Network for Arthropod Vector Surveillance for Human Public Health"

AGM Antwerp 2010

WP3 – Invasive Mosquitoes in Europe

Francis Schaffner



WP3 – Vector surveillance and distribution data

- “To maintain and update existing **databases for vector surveillance and distribution**, and create new databases for arthropod vector surveillance based on available data”
- Scheme
 - 4.3.3 Arthropod vector surveillance
 - 4.3.4 Arthropod vector distribution maps
- Mosquitoes: known active and potential vectors
First step: invasive species
 - *Aedes albopictus*
 - *Aedes aegypti*
 - *Aedes japonicus*

4.3.4 Arthropod vector distribution maps

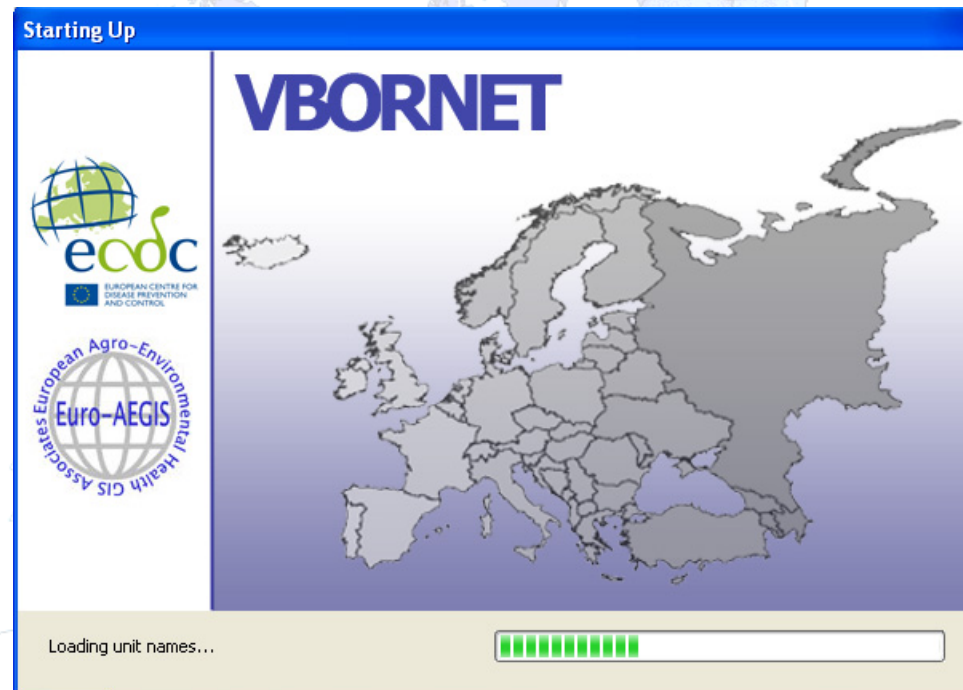
- First phase focus on vector species carrying priority diseases listed by the V-borne project
- Network design, questionnaire and database
- Creation of state of the art maps based on the expert validated presence/absence data

Admin levels 1 (country) - 2 (region) – 3 (province/district)



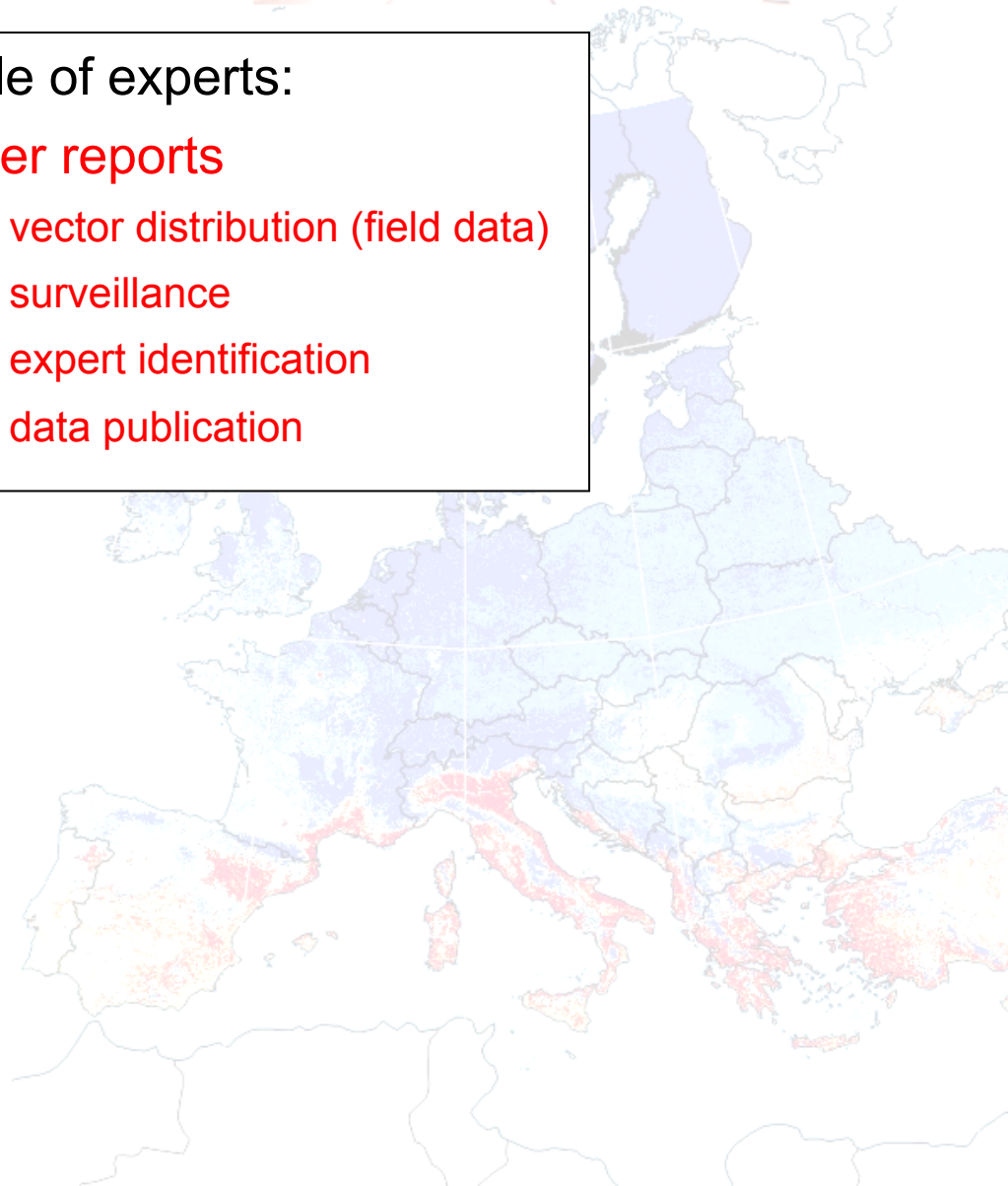
V
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Methods and tools



Methods

- Role of experts:
 - ✓ enter reports
 - ✓ vector distribution (field data)
 - ✓ surveillance
 - ✓ expert identification
 - ✓ data publication

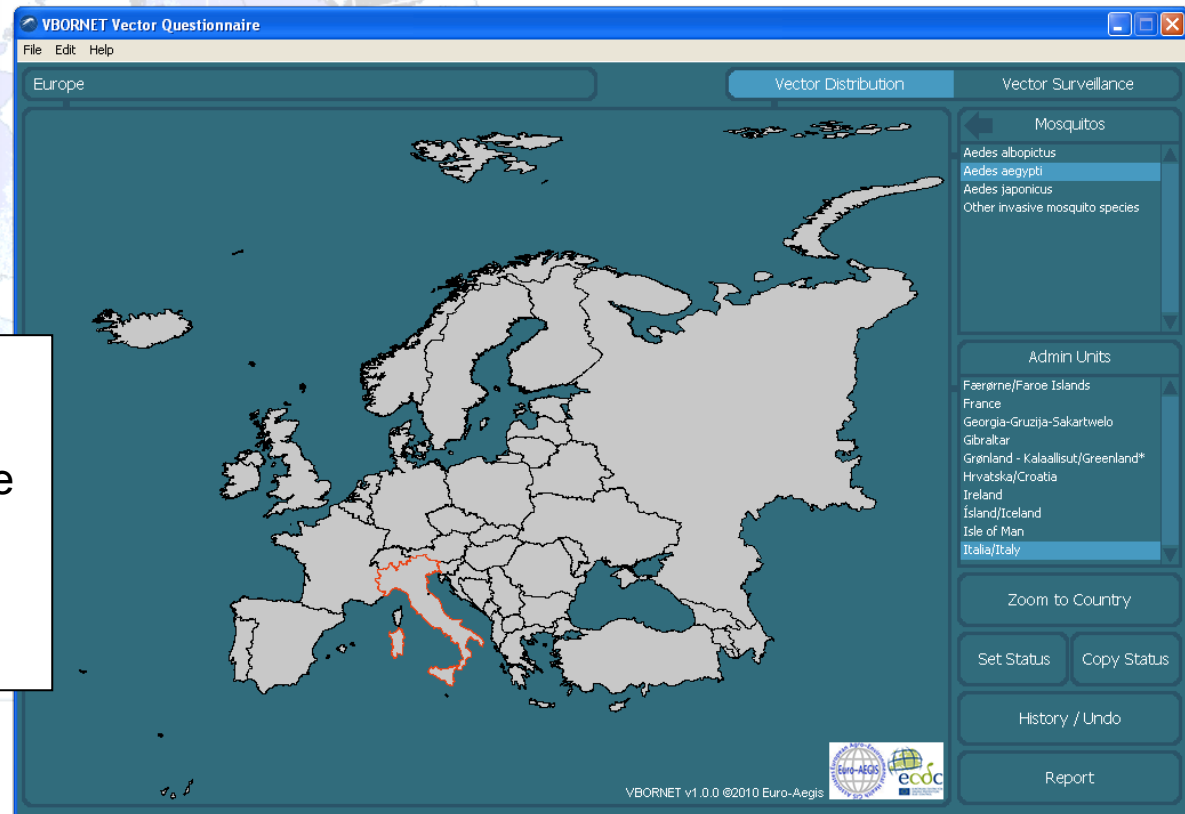
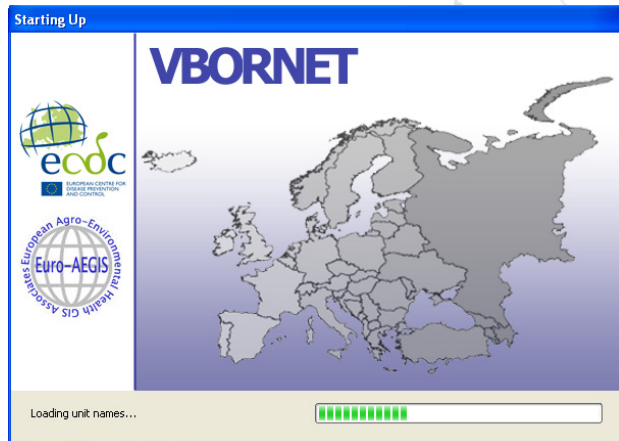


Data sharing tool



- **VBORNET Vector Questionnaire**

- Available for <http://edendatasite.com/> 'VBORNET' page



Main window:

- select vector
- distribution or surveillance
- select administrative unit
- copy or/and set status
- report

VBORNET Vector Questionnaire

File Edit Help

Italia/Italy (NUTS 3) Vector Distribution Vector Surveillance

Mosquitos

- Aedes albopictus
- Aedes aegypti
- Aedes japonicus

VBORNET Questionnaire - Set Status

Questionnaire

Italia/Italy (NUTS 3):

- Agrigento
- Alessandria
- Ancona
- Arezzo
- Ascoli Piceno
- Asti
- Avellino
- Bari
- Belluno
- Benevento
- Bergamo
- Biella
- Bologna
- Bolzano-Bozen
- Brescia
- Brindisi
- Cagliari
- Caltanissetta
- Campobasso
- Caserta
- Catania
- Catanzaro
- Chieti
- Como
- Cosenza
- Cremona
- Crotone
- Cuneo
- Enna
- Ferrara
- Firenze
- Foggia
- Forlì-Cesena
- Frosinone
- Genova
- Gorizia
- Grosseto
- Imperia
- Isernia
- L'Aquila
- La Spezia
- Latina
- Lecce
- Lecco
- Livorno
- Lodi
- Lucca
- Macerata

D1: Is Aedes albopictus present:

D2: Environment: Only Present In Sheltered Environment, Specify:

D3: Date first confirmed record: NA Don't Know Date (dd/mm/yyyy)

D4: Date last confirmed record: NA Don't Know Date (dd/mm/yyyy)

D5: Scientist providing information: Re-use recently entered expert

5.1.1 Surname (*): Scholte 5.1.2 First Name(s) (*): Ernst-Jan

5.1.3 Title: 5.1.4 Position: 5.1.5 Phone Office: +31 317 49 69 08

5.1.7 E-mail (*): e.j.scholte@minlnv.nl 5.1.6 Phone Mobile:

5.2.1 Organisational legal name (*): National Centre for Monitoring of Vectors

5.2.2 Org. short name: CMV 5.2.3 Department/Faculty/Institute/Laboratory:

5.3.4 Street name and number: Geertjesweg 15 5.3.1 PO Box: 9102

5.3.2 Postal Code: 6700 HC 5.3.3 Cedex: 5.3.5 Town: Wageningen 5.3.6 Country: The Netherlands

5.3.7 Internet homepage:

D6: Point data: Related GIS Point Data is available

D7: Published source:

Please answer all items. D5 items marked with a (*) are compulsory.

Clear Close Apply

VBORNET Vector Questionnaire

File Edit Help

Italia/Italy (NUTS 3)

Vector Distribution Vector Surveillance

Mosquitos

- Aedes albopictus
- Aedes aegypti
- Aedes japonicus

VBORNET Questionnaire - Set Status

Questionnaire

Italia/Italy (NUTS 3):

- Agrigento
- Alessandria
- Ancona
- Arezzo
- Ascoli Piceno
- Asti
- Avellino
- Bari
- Belluno
- Benevento
- Bergamo
- Biella
- Bologna
- Bolzano-Bozen
- Brescia
- Brindisi
- Cagliari
- Caltanissetta
- Campobasso
- Caserta
- Catania
- Catanzaro
- Chieti
- Como
- Cosenza
- Cremona
- Crotone
- Cuneo
- Enna
- Ferrara
- Firenze
- Foggia
- Forlì-Cesena
- Frosinone
- Genova
- Gorizia
- Grosseto
- Imperia
- Isernia
- L'Aquila
- La Spezia
- Latina
- Lecce
- Lecco
- Livorno
- Lodi
- Lucca
- Macerata

S1: Vector surveillance activities *Aedes albopictus*: Yes

S2: Type of vector surveillance: NA Occasionally Regular Seasonally

S3: Date start vector surveillance: NA Don't Know Date (ddmmyyyy):

S4: Date end vector surveillance: NA Don't Know Date (ddmmyyyy):

S5: Person responsible for vector surveillance: Re-use recently entered expert

5.1.1 Surname (*): 5.1.2 First Name(s) (*):

5.1.3 Title: 5.1.4 Position: 5.1.5 Phone Office:

5.1.7 E-mail (*): 5.1.6 Phone Mobile:

5.2.1 Organisational legal name (*):

5.2.2 Org. short name: 5.2.3 Department/Faculty/Institute/Laboratory:

5.3.4 Street name and number: 5.3.1 PO Box:

5.3.2 Postal Code: 5.3.3 Cedex: 5.3.5 Town: 5.3.6 Country:

5.3.7 Internet homepage:

Please answer all items. S5 items marked with a (*) are compulsory.

Clear Close Apply

Methods



- Role of experts:
 - ✓ enter reports
 - ✓ vector distribution (field data)
 - ✓ surveillance
 - ✓ expert identification
 - ✓ data publication

- Role of focal point:
 - ✓ **validate expert's reports**
 - ✓ attribute a status to each unit, based on:
 - Expert's reports
 - Up-scaling of reports
 - Absence of reports

Validation tool

- VBORNET Vector Validator**

The period loaded is period number 1.
 Starting from 01/01/2010 and ending before 01/04/2010.
 You have to upload your validation data between 01/04/2010 and 14/04/2010.

Vector Distribution	Vector Surveillance	Admin Unit	Unver. ▲	Total	Current Status	New Status
Arthropod		⊕ Andorra		1		Absent
<ul style="list-style-type: none"> Vectors Mosquitos <ul style="list-style-type: none"> Aedes albopictus 0 Aedes aegypti 0 Aedes japonicus 0 Ticks Phlebotomines 		⊕ Anguila				Unknown
		⊕ Armenia-Hayastan				Unknown
		⊕ Aruba				Unknown
		⊕ Azerbaijan				Unknown
		⊕ Belarus				Unknown
		⊕ Belgique-België/Belgium		44		Not Anymore
		⊕ Bermuda				Unknown
		⊕ Bosna i Hercegovina/Bosnia and Herzegovina		17		Recently Present
		⊕ Bouvet				Unknown
		⊕ British Indian Ocean Territory				Unknown
		⊕ Bulgaria		35		Absent
		⊕ Ceska Republika/Czech Republic		17		Absent
		⊕ Channel Islands		1		Absent
		⊕ Città del Vaticano/Vatican City State (Holy See)		1		Recently Present
		⊕ Denmark/Danmark		7		Absent
		⊕ Deutschland/Germany		464		Not Anymore
		⊕ Eesti/Estonia		5		No Data
		⊕ Ellada/Greece		51		Recently Present
		⊕ España/Spain		8		Recently Present
		⊕ Færøerne/Faroe Islands		1		No Data
		⊕ France		97		
		⊕ Georgia-Gruzija-Sakartwelo				Unknown
		⊕ Gibraltar				Unknown
		⊕ Grønland - Kalaallit/Greenland				Unknown
		⊕ Hrvatska/Croatia		21		Recently Present

VBORNET Vector Validator

The period loaded is period number 1.
Starting from 01/01/2010 and ending before 01/04/2010.
You have to upload your validation data between 01/04/2010 and 14/04/2010.



Vector Distribution Vector Surveillance

- Arthropod Unverified
- Vectors
- Mosquitos
- Aedes albopictus

Admin Unit	Unver. ▲	Total	Current Status	New Status
Dubrovacko-neretvanska (N-3)		1		
Istarska (N-3)		1		
Licko-senjska (N-3)		1		
Primorsko-goranska (N-3)		1		
Sibensko-klošćanska (N-3)		1		
		1		
		1		
		6		
		1		
		1	No Data	
		1	No Data	
		1	No Data	
		1	No Data	
		1	No Data	
		8	Absent	
		1	No Data	
		1	No Data	
		1	No Data	
		1	Absent	
		1	No Data	
		1	No Data	
		1	No Data	
		1	No Data	
		8	Absent	
			Unknown	
		1	Absent	
		104		
		1		
		6		

Grad Zagreb (N-3)

File Edit Window Help

Vector Distribution: Aedes albopictus

Admin Unit - Parents and Children:

- Hrvatska/Croatia
 - Hrvatska (N-1)
 - Sjeverozapadna Hrvatska (N-2)
 - Grad Zagreb (N-3)**

Reports Metadata

Reporter	Date	Status	Valid	Invalid
Francis Schaffner [francis]	11-03-2010 19:20:21	Not Anymore	<input checked="" type="checkbox"/> Valid	<input type="checkbox"/> Invalid

Current Status

Status: -
Set by: -
Comments:

New Status

Status:
 Comments:
 Indigenous
 Recently Present
 Absent
 Extinct
 Not Anymore
 No Data
 Unknown



Methods

- Role of experts:
 - ✓ enter reports
 - ✓ vector distribution (field data)
 - ✓ surveillance
 - ✓ expert identification
 - ✓ data publication

- Role of focal point:
 - ✓ validate expert's reports
 - ✓ **attribute a status to each unit**, based on:
 - Expert's reports
 - Up-scaling of reports
 - Absence of reports

Methods

- Role of focal point:
 - ✓ Validate expert's reports
 - ✓ **attribute a status to each unit**, based on
 - Expert's reports
 - Up-scaling of reports
 - Absence of reports

- *Distribution:*
 - 1 indigenous *or* recently present
 - 2 extinct *or* not anymore
 - 3 absent
 - 4 no data
 - 5 unknown
- *Surveillance:*
 - 1 yes
 - 2 not anymore
 - 3 no
 - 4 no data
 - 5 unknown

- ex. 1: if at least one 4 and no 1-3 for NUTS3, report 4 for NUTS<
- ex. 2: if at least one 2 and no 1 for NUTS3, report 2 for NUTS<

VBORNET Vector Validator

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You have to upload your validation data between 01/04/2010 and 14/04/2010.

Download Upload

Vector Distribution Vector Surveillance

Arthropod Unverified

- Vectors
 - Mosquitos
 - Aedes albopictus 0
 - Aedes aegypti 0
 - Aedes japonicus 0
 - Ticks
 - Phlebotomines

Admin Unit	Unver.	Total	Current Status	New Status
Hrvatska/Croatia		21		Recently Present
Hrvatska (N-1)		21		Recently Present
Jadranska Hrvatska (N-2)		7		Recently Present
Dubrovacko-neretvanska (N-3)		1		Recently Present
Istarska (N-3)		1		Recently Present
Licko-senjska (N-3)		1		No Data
Primorsko-goranska (N-3)		1		Recently Present
Sibensko-kninska (N-3)		1		Recently Present
Splitsko-dalmatinska (N-3)		1		Recently Present
Zadarska (N-3)		1		Recently Present
Sjeverozapadna Hrvatska (N-2)		6		Not Anymore
Grad Zagreb (N-3)		1		Not Anymore
Koprivnicko-krizevacka (N-3)		1		No Data
Krapinsko-zagorska (N-3)		1		No Data
Medimurska (N-3)		1		No Data
Varazdinska (N-3)		1		No Data
Zagrebacka (N-3)		1		No Data
Srednjsna i Istocna (Panonska) Hrvatska (N-2)		8		Absent
Bjelovarsko-bilogorska (N-3)		1		No Data
Brodsko-posavska (N-3)		1		No Data
Karlovska (N-3)		1		No Data
Osjecko-baranjska (N-3)		1		Absent
Pozesko-slavonska (N-3)		1		No Data
Sisacko-moslavacka (N-3)		1		No Data
Virovicko-podravaska (N-3)		1		No Data
Vukovarsko-srijemska (N-3)		1		No Data

Sjeverozapadna Hrvatska (N-2)

Vector Distribution: Aedes albopictus

Admin Unit - Parents and Children:

- Hrvatska/Croatia
 - Hrvatska (N-1)
 - Sjeverozapadna Hrvatska (N-2)**
 - Grad Zagreb (N-3)
 - Koprivnicko-krizevacka (N-3)
 - Krapinsko-zagorska (N-3)
 - Medimurska (N-3)
 - Varazdinska (N-3)
 - Zagrebacka (N-3)

Reports Metadata

Reporter

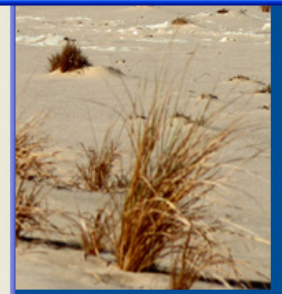
Current Status

Status: -
Set by: -
Comments:

New Status

Status: Not Anymore

Comments:



VBORNET Vector Validator

The period loaded is period number 1.
Starting from 01/01/2010 and ending before 01/04/2010.
You have to upload your validation data between 01/04/2010 and 14/04/2010.

Download Upload

Vector Distribution Vector Surveillance

Admin Unit

Admin Unit	Unver.	Total	Current Status	New Status
Hrvatska/Croatia		21		Recently Present
Hrvatska (N-1)		21		Recently Present
Jadranska Hrvatska (N-2)		7		Recently Present
Dubrovacko-neretvanska (N-3)		1		Recently Present
Istarska (N-3)		1		Recently Present
Zadarska (N-3)		1		No Data
Sjeverozapadna Hrvatska (N-2)		1		Recently Present
Grad Zagreb (N-3)		1		Recently Present
Koprivnicko-krizevacka (N-3)		1		Recently Present
Krapinsko-zagorska (N-3)		1		Recently Present
Medimurska (N-3)		6		Not Anymore
Varazdinska (N-3)		1		Not Anymore
Zagrebacka (N-3)		1		No Data
Srednjsna i Istocna (Panonska) Hrvatska (N-2)		1		No Data
Bjelovarsko-bilogorska (N-3)		1		No Data
Brodsko-posavska (N-3)		1		Absent
Karlovska (N-3)		1		No Data
Osjecko-baranjska (N-3)		1		No Data
Pozesko-slavonska (N-3)		1		No Data
Sisacko-moslavacka (N-3)		1		No Data
Viroviticko-podravaska (N-3)		1		No Data
Vukovarsko-srijemska (N-3)		1		No Data

Hrvatska/Croatia

File Edit Window Help

Vector Distribution: Aedes albopictus

Admin Unit - Parents and Children:

- Hrvatska/Croatia
 - Hrvatska (N-1)
 - Jadranska Hrvatska (N-2)
 - Dubrovacko-neretvanska (N-3)
 - Istarska (N-3)
 - Licko-senjska (N-3)
 - Primorsko-goranska (N-3)
 - Sibensko-kninska (N-3)
 - Splitsko-dalmatinska (N-3)
 - Zadarska (N-3)
 - Sjeverozapadna Hrvatska (N-2)
 - Grad Zagreb (N-3)
 - Koprivnicko-krizevacka (N-3)
 - Krapinsko-zagorska (N-3)
 - Medimurska (N-3)
 - Varazdinska (N-3)
 - Zagrebacka (N-3)
 - Srednjsna i Istocna (Panonska) Hrvatska (N-2)
 - Bjelovarsko-bilogorska (N-3)
 - Brodsko-posavska (N-3)
 - Karlovska (N-3)
 - Osjecko-baranjska (N-3)
 - Pozesko-slavonska (N-3)
 - Sisacko-moslavacka (N-3)
 - Viroviticko-podravaska (N-3)
 - Vukovarsko-srijemska (N-3)

Reports Metadata

Reporter	Date	Status	Valid	Invalid
Francis Schaffner [francis]	11-03-2010 19:20:23	Recently Present	<input checked="" type="checkbox"/> Valid	<input type="checkbox"/> Invalid
Francis Schaffner [francis]	11-03-2010 19:20:24	Recently Present	<input checked="" type="checkbox"/> Valid	<input type="checkbox"/> Invalid
Francis Schaffner [francis]	11-03-2010 19:20:25	Recently Present	<input checked="" type="checkbox"/> Valid	<input type="checkbox"/> Invalid
Francis Schaffner [francis]	11-03-2010 19:20:26	Recently Present	<input checked="" type="checkbox"/> Valid	<input type="checkbox"/> Invalid
Francis Schaffner [francis]	11-03-2010 19:20:27	Recently Present	<input checked="" type="checkbox"/> Valid	<input type="checkbox"/> Invalid
Francis Schaffner [francis]	11-03-2010 19:20:30	Recently Present	<input checked="" type="checkbox"/> Valid	<input type="checkbox"/> Invalid

Current Status

Status: -
Set by: -
Comments:

New Status

Status: Recently Present
Comments: Indigenous, Recently Present, Absent, Extinct, Not Anymore, No Data, Unknown



- Further input of experts:

- ✓ include new reports (updating the data)
- ✓ validate expert name and affiliation
- ✓ enter reference for publication of data

España/Spain (NUTS 3):

- A Coruña
- Álava
- Albacete
- Alicante / Alacant
- Almería
- Asturias
- Ávila
- Badajoz
- Barcelona
- Burgos
- Cáceres
- Cádiz
- Cantabria
- Castellón / Castelló
- Ciudad Real
- Córdoba
- Cuenca
- Girona
- Granada
- Guadalajara
- Guipúzcoa
- Huelva
- Huesca
- Illes Balears
- Jaén
- La Rioja
- Las Palmas
- León
- Lleida
- Lugo
- Madrid
- Málaga
- Murcia
- Navarra
- Ourense
- Palencia
- Pontevedra
- Salamanca
- Santa Cruz de Tenerife
- Segovia
- Sevilla
- Soria
- Tarragona
- Teruel
- Toledo
- Valencia / València
- Valladolid
- Vizcaya

Vector Distribution | **Vector Surveillance**

Mosquitos

- Aedes albopictus
- Aedes aegypti
- Aedes japonicus

NUTS 1 | **NUTS 2** | **NUTS 3**

D1: Is *Aedes albopictus* present: Recently Present

D2: Environment: Only Present In Sheltered Environment, Specify:

D3: Date first confirmed record: NA Don't Know Date (ddmmYYYY): 31122004

D4: Date last confirmed record: NA Don't Know Date (ddmmYYYY): 31122009

D5: Scientist providing information: Re-use recently entered expert

5.1.1 Surname (*): Eritja 5.1.2 First Name(s) (*): Roger

5.1.3 Title: 5.1.4 Position: 5.1.5 Phone Office: +34 (936) 401 399

5.1.7 E-mail (*): reritja@elbaixllobregat.cat 5.1.6 Phone Mobile:

5.2.1 Organisational legal name (*): Consell Comarcal del Baix Llobregat

5.2.2 Org. short name: 5.2.3 Department/Faculty/Institute/Laboratory: Servei de Control de Mosquits

5.3.4 Street name and number: Parc Torreblanca 5.3.1 PO Box:

5.3.2 Postal Code: 08980 5.3.3 Cedex: 5.3.5 Town: Sant Feliu de Llobre 5.3.6 Country: Spain

5.3.7 Internet homepage: http://www.virtualbaix.com/mosquits

D6: Point data: Related GIS Point Data is available

D7: Published source:

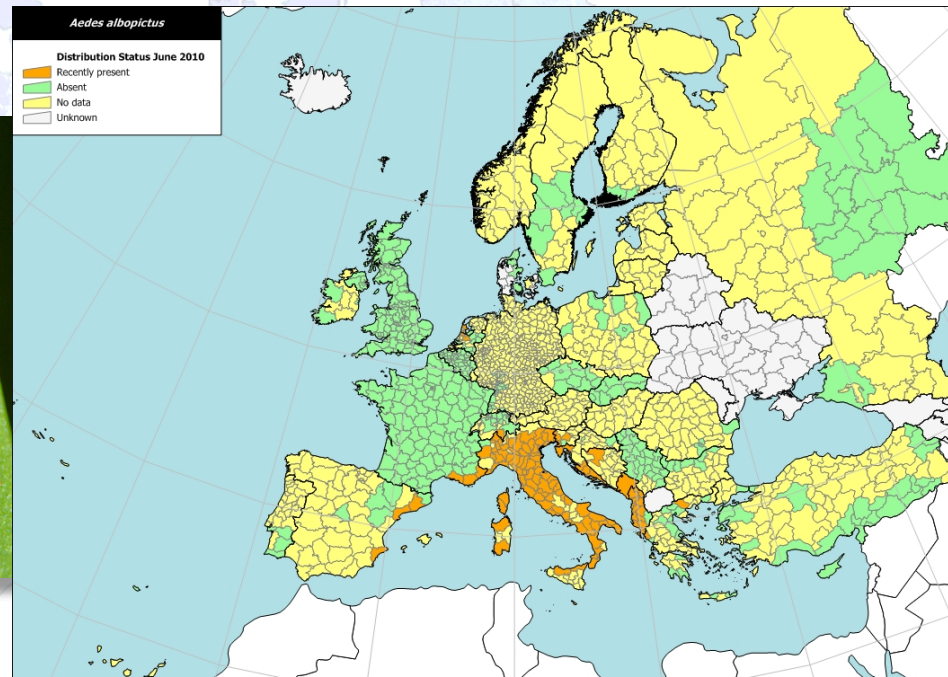
Please answer all items. D5 items marked with a (*) are compulsory.

Clear Close Apply

Zoom to NUTS 0 Set Status Copy Status History / Undo Report (BB)

demarrer 2 Explorat... VBORNET Ve... @VBORNET... Microsoft Po... Adobe Phot... 2 VBORNET 100% 20:45

Achievements

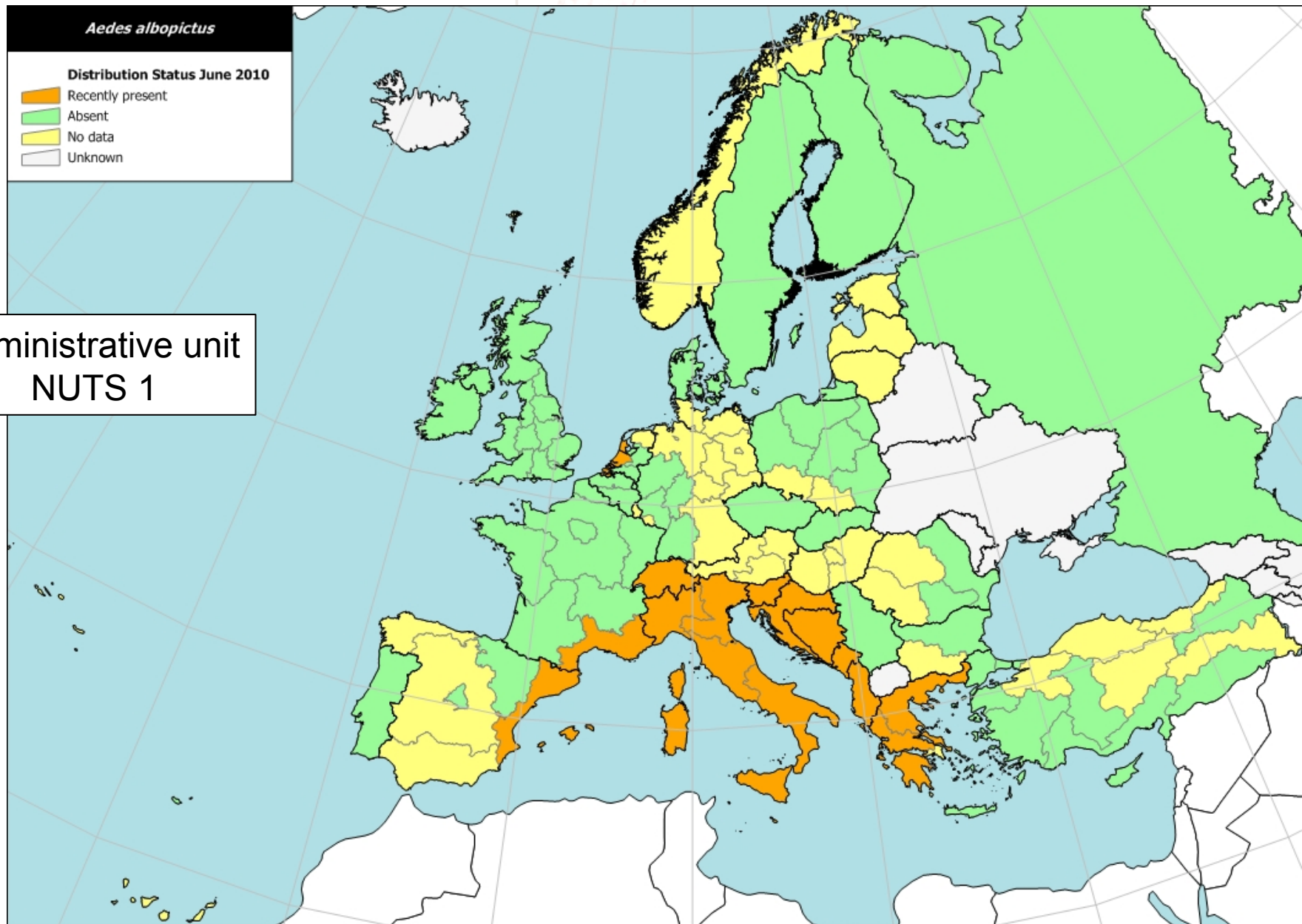


Aedes albopictus

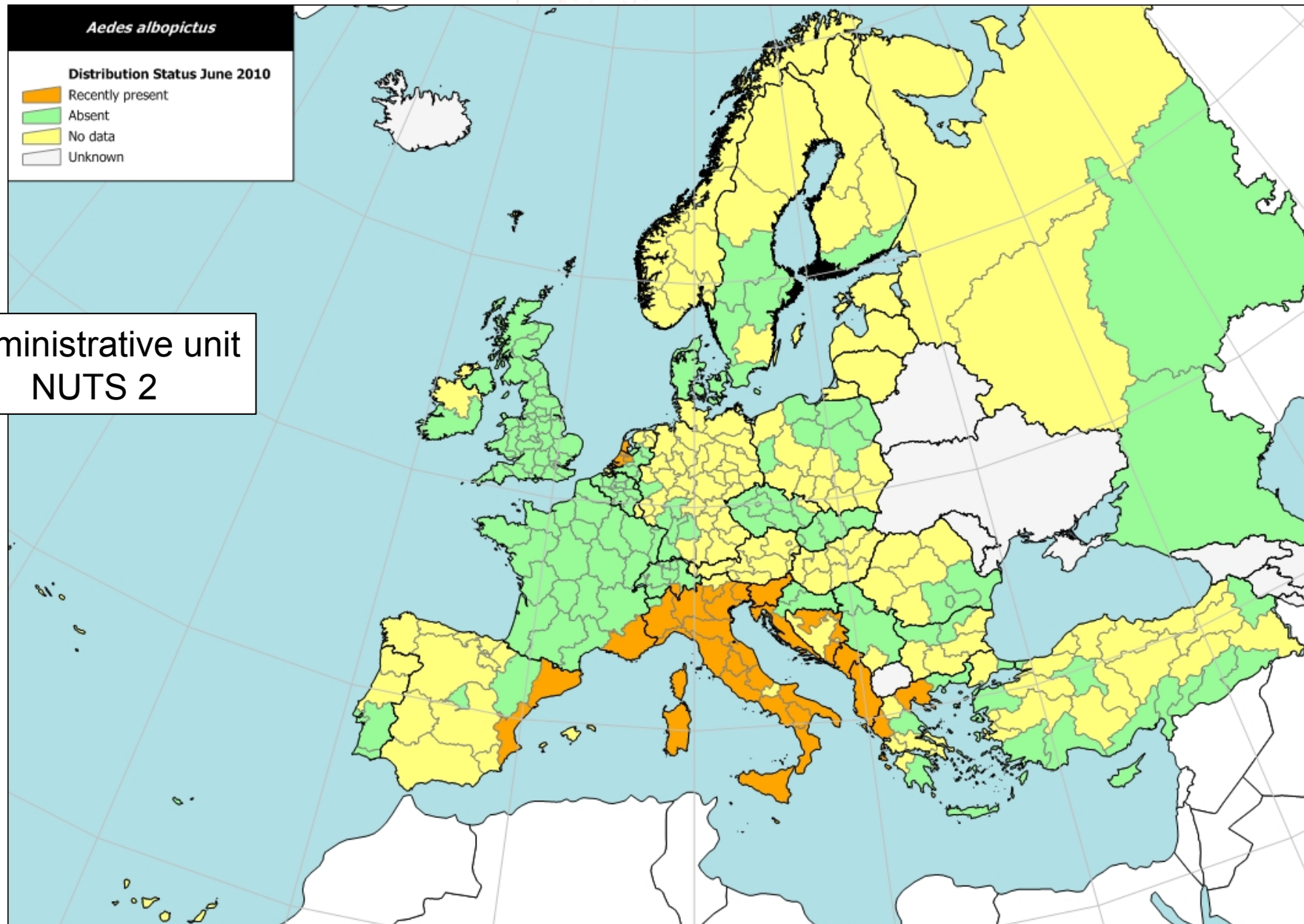


- Overview of current hazards associated with *Ae. albopictus*
 - Top 100 invasive species; most invasive mosquito
 - Introduced to Europe via used-tyres, Lucky bamboo
 - Widely established in Albania, Italy etc., also spreading in France, Spain...
 - Establishment is contingent on temperate/tropical strain
 - Risk mapping suggests further spread
 - Known vector of CHIKV, DENV, *Dirofilaria*, VC for
 - Involvement in Italian CHIKV outbreak
 - Biting nuisance
 - Ecological plasticity: cold acclimation, winter diapause

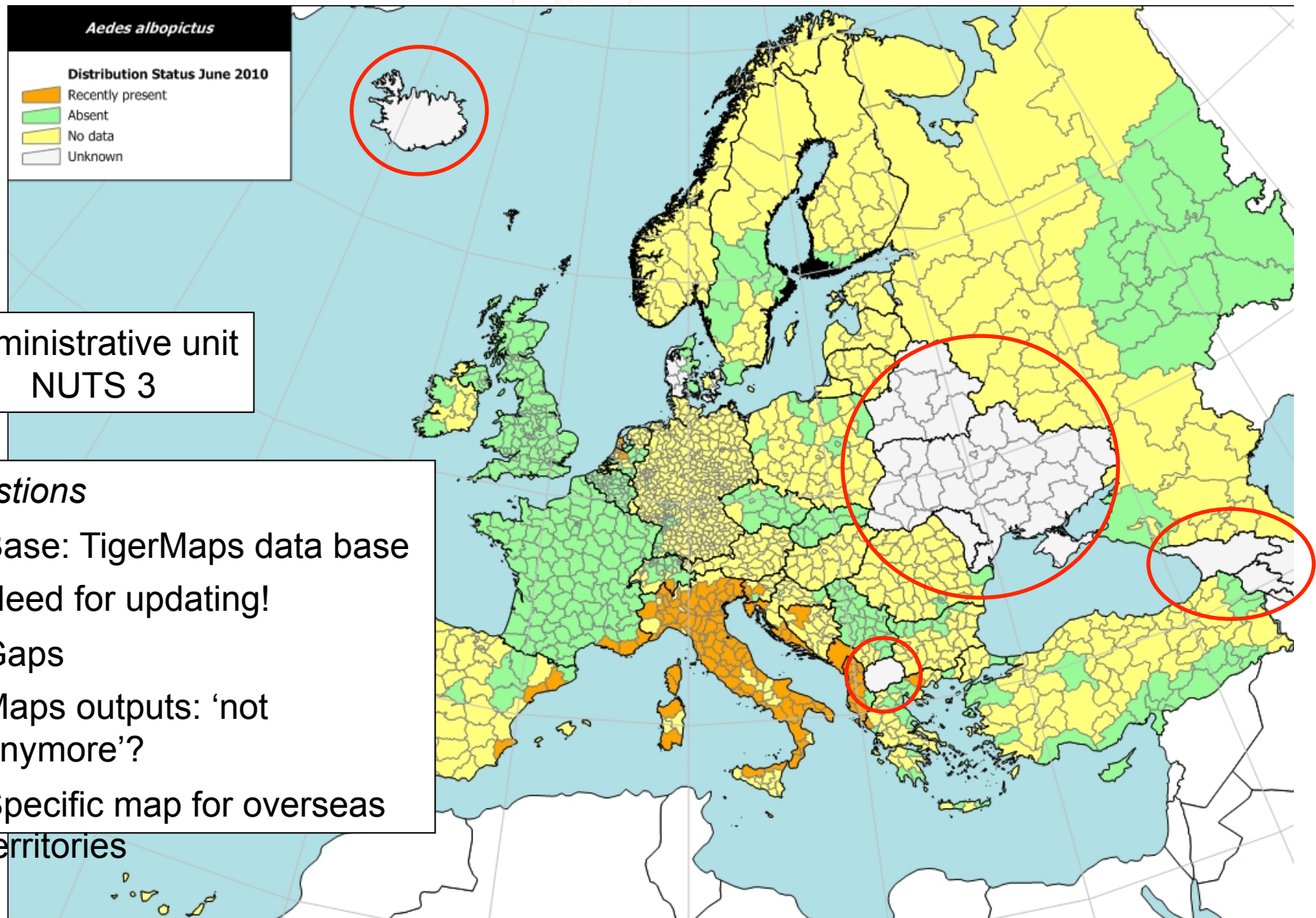
Aedes albopictus: distribution map



Aedes albopictus: distribution map



Aedes albopictus: distribution map

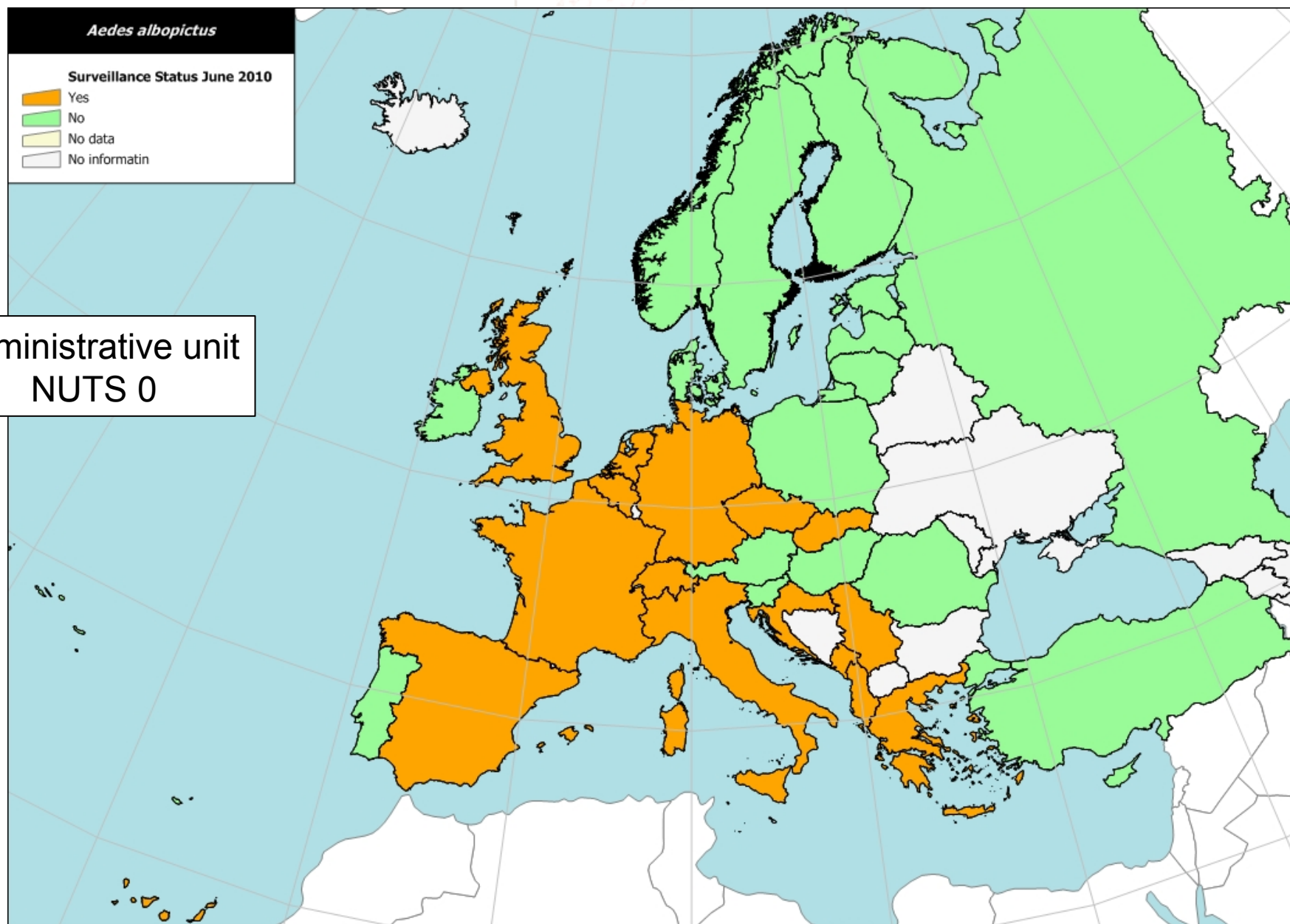


Administrative unit
NUTS 3

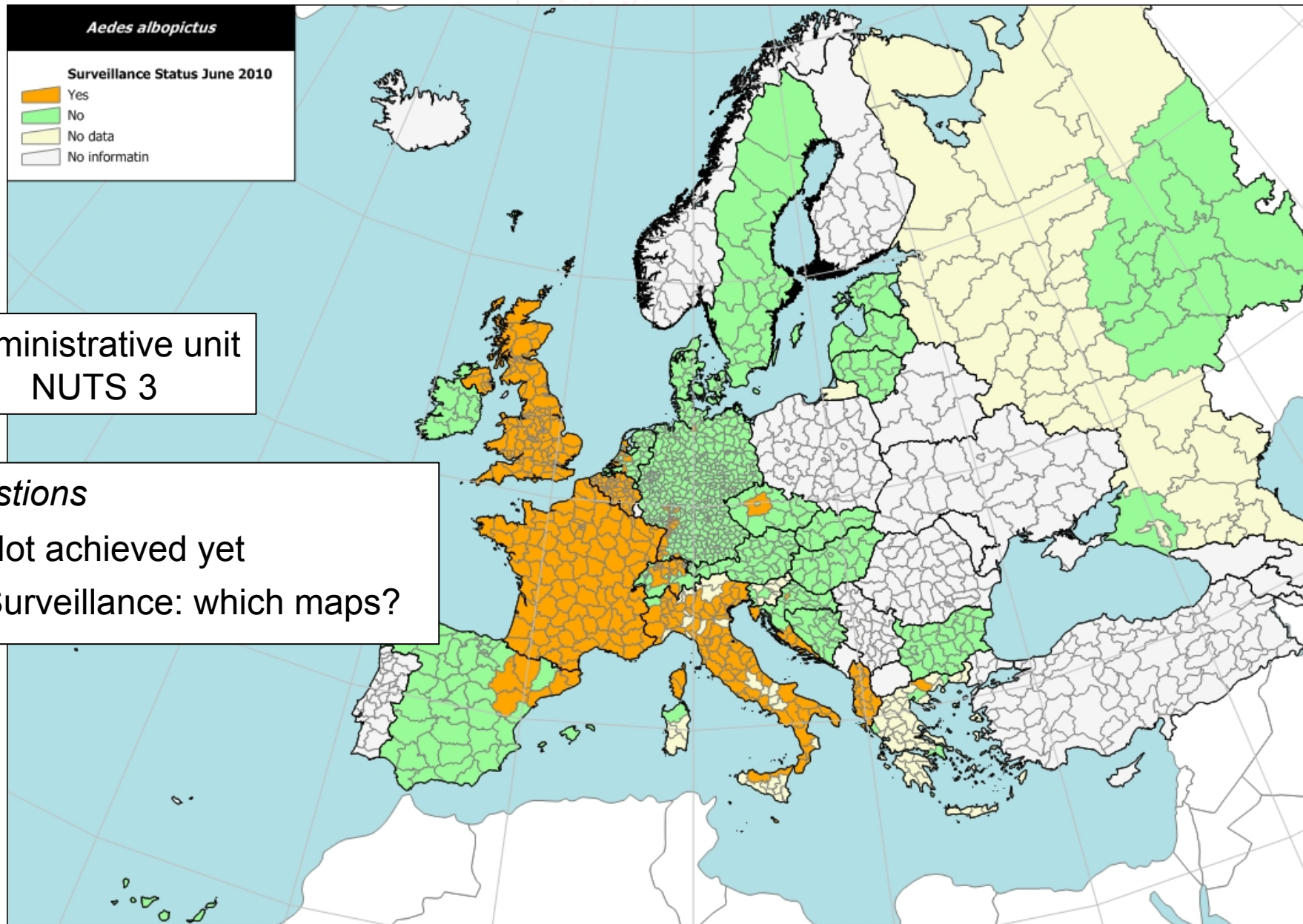
Questions

- Base: TigerMaps data base
- Need for updating!
- Gaps
- Maps outputs: 'not anymore'?
- Specific map for overseas territories

Aedes albopictus: surveillance map



Aedes albopictus: surveillance map



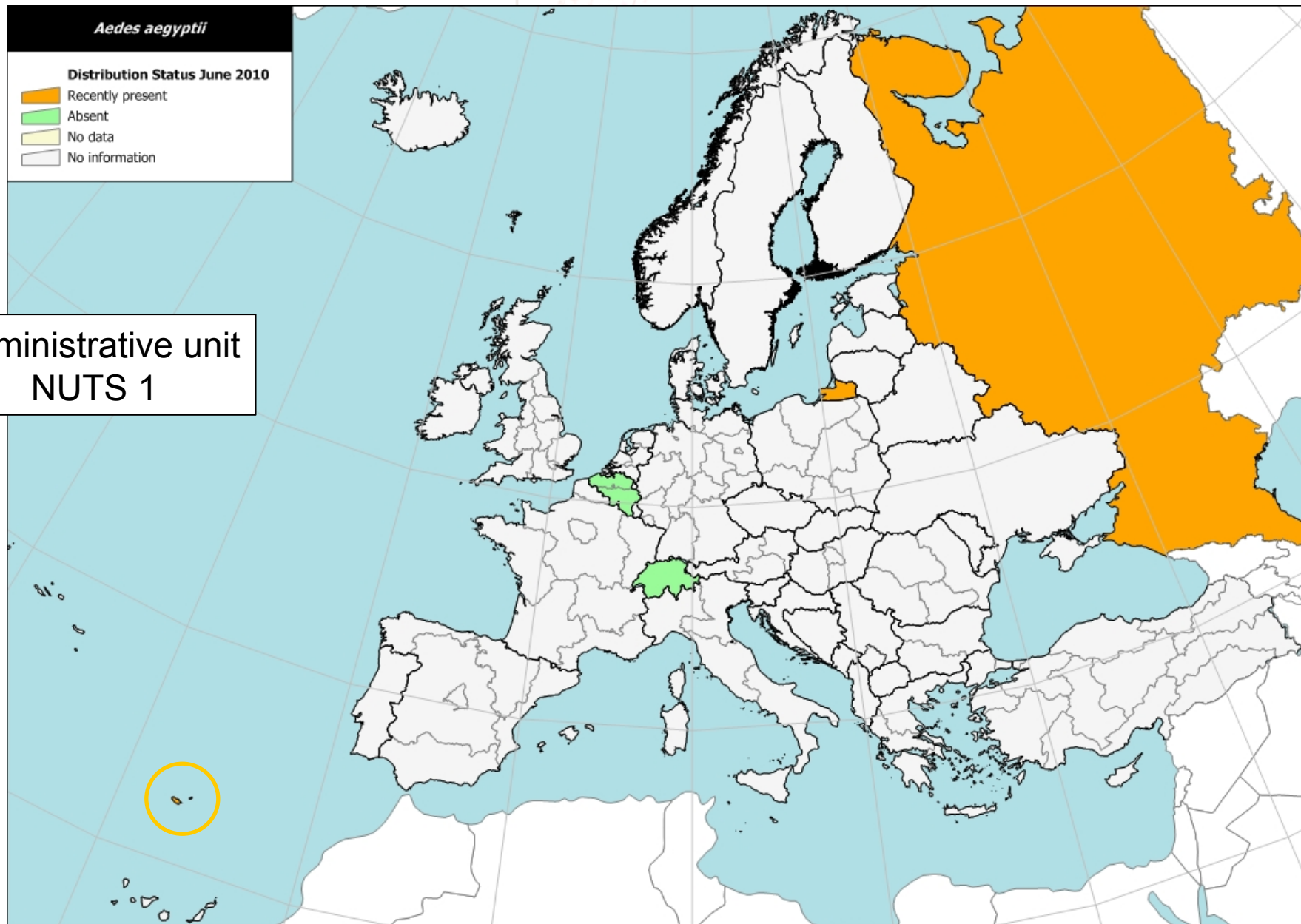
Administrative unit
NUTS 3

- Questions*
- Not achieved yet
 - Surveillance: which maps?

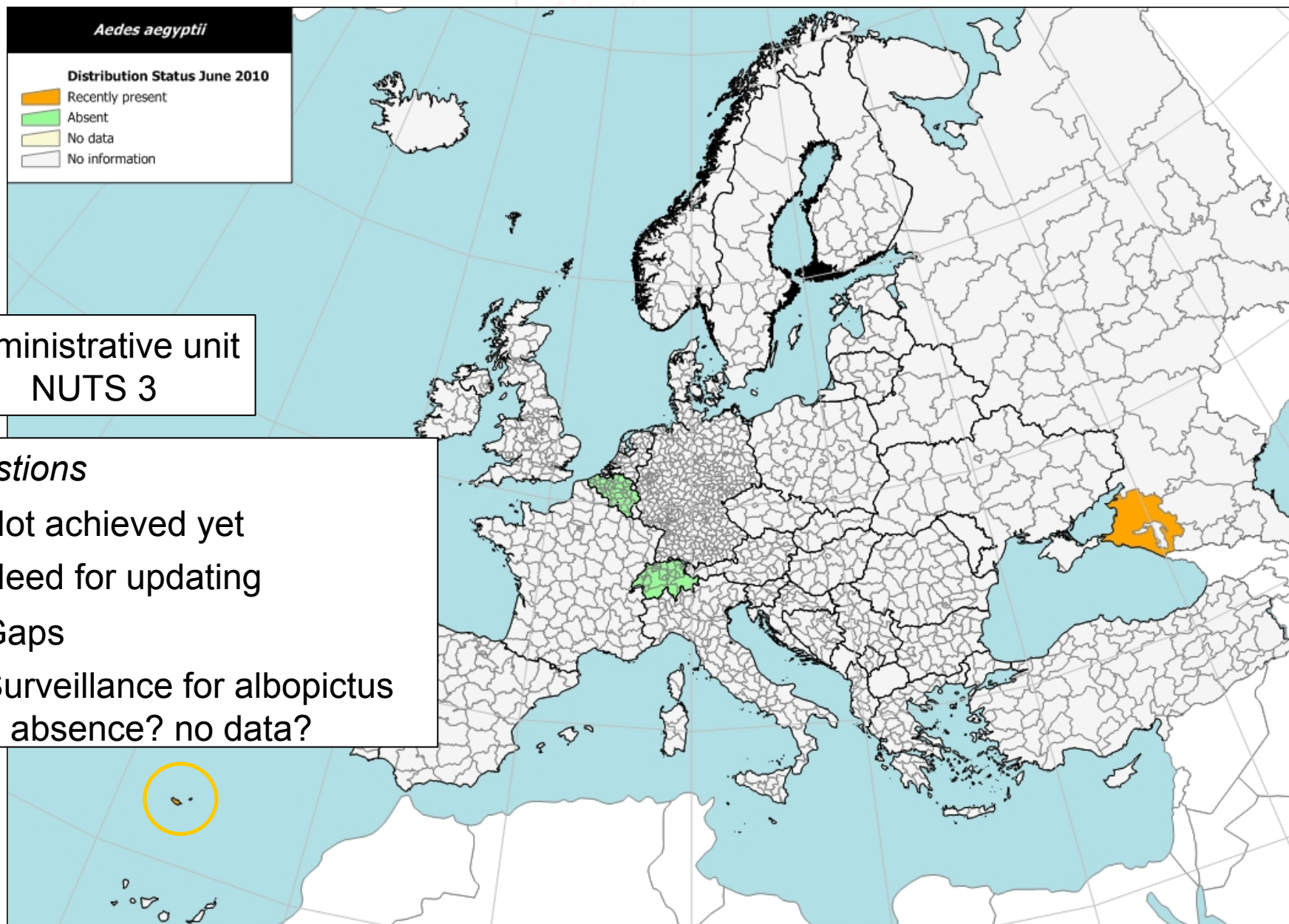
Aedes aegypti

- Overview of current hazards associated with *Ae. aegypti*
 - Present (and vector of diseases) in several European countries in the past
 - Act as vector in overseas territories
 - Highly anthropophilic and synanthropic
 - Important disease vector: YF, DENV, CHIKV
 - Re-colonises some parts of Europe
 - Intolerance of cold temperatures will limit northerly spread

Aedes aegypti: distribution map



Aedes aegypti: distribution map



Questions

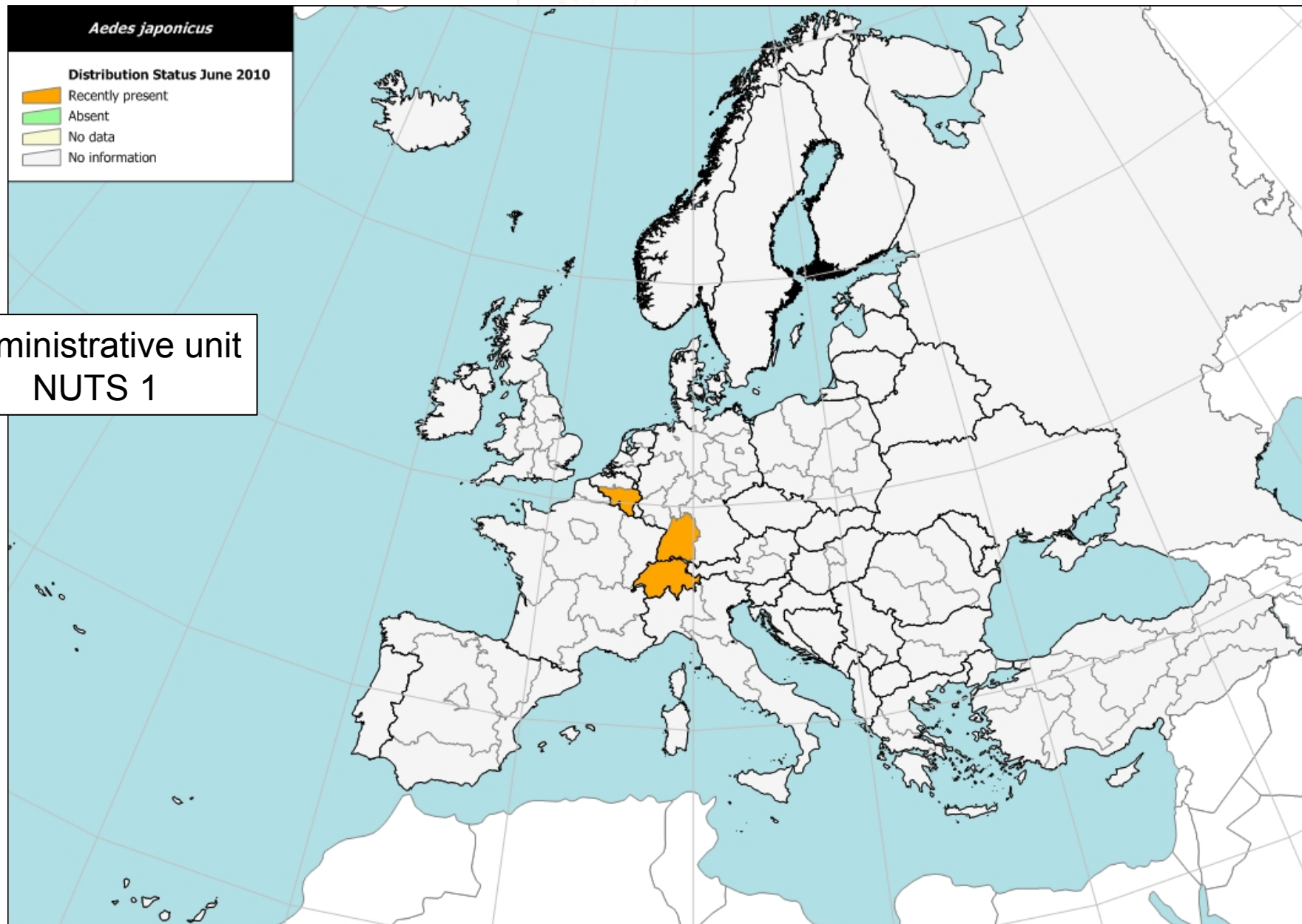
- Not achieved yet
- Need for updating
- Gaps
- Surveillance for albopictus = absence? no data?



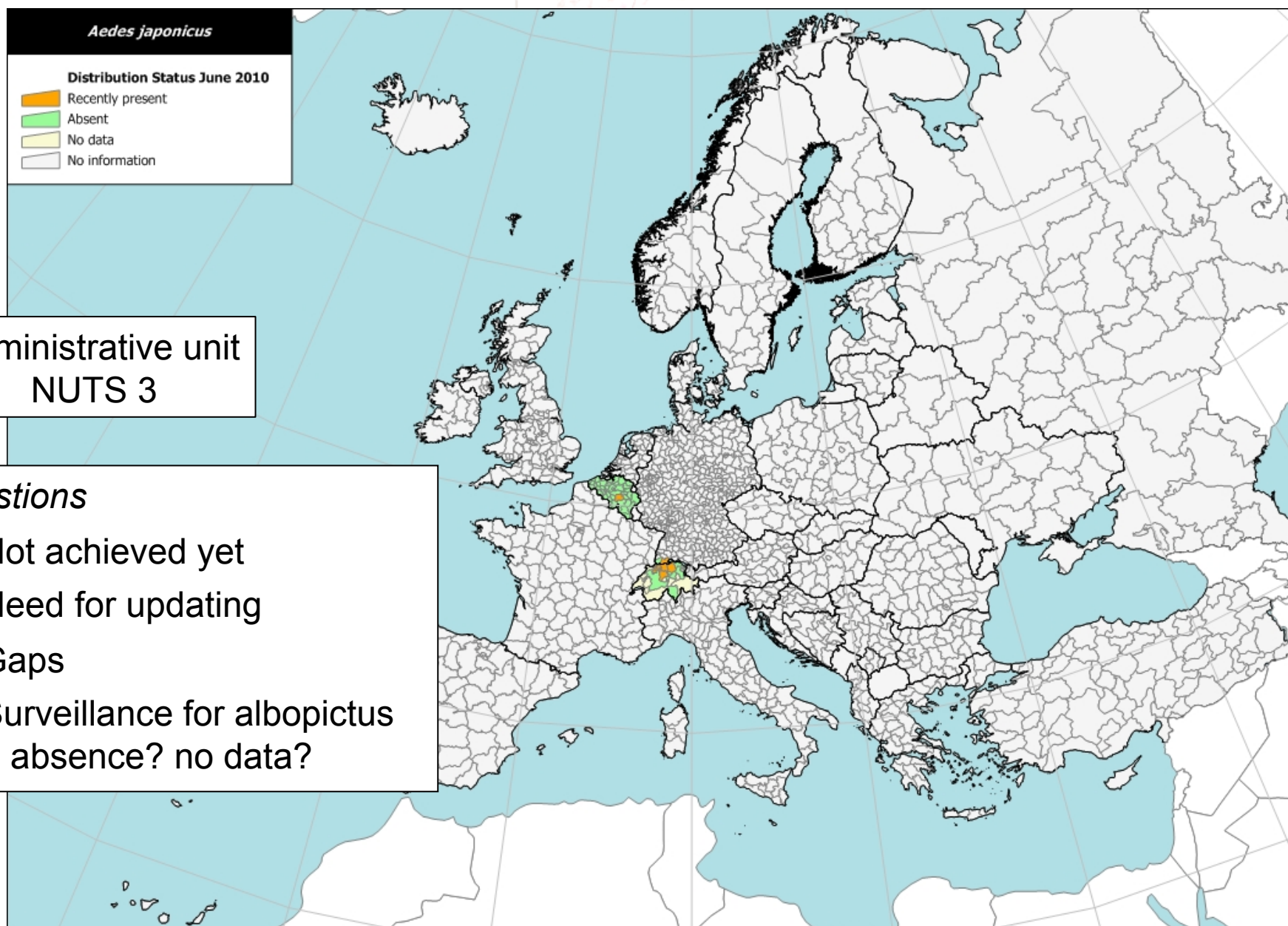
Aedes japonicus

- Overview of current hazards associated with *Ae. japonicus*
 - Recognized as an invasive species
 - Introduced in Belgium, France, Germany, Switzerland
 - Rapid establishment and spread in Switzerland
 - Nuisance species; possible WNV vector, status unclear
 - Tolerance of cold temperatures will not limit spread

Aedes japonicus: distribution map



Aedes japonicus: distribution map



Questions

- Not achieved yet
- Need for updating
- Gaps
- Surveillance for albopictus = absence? no data?



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Perspectives



Dissemination

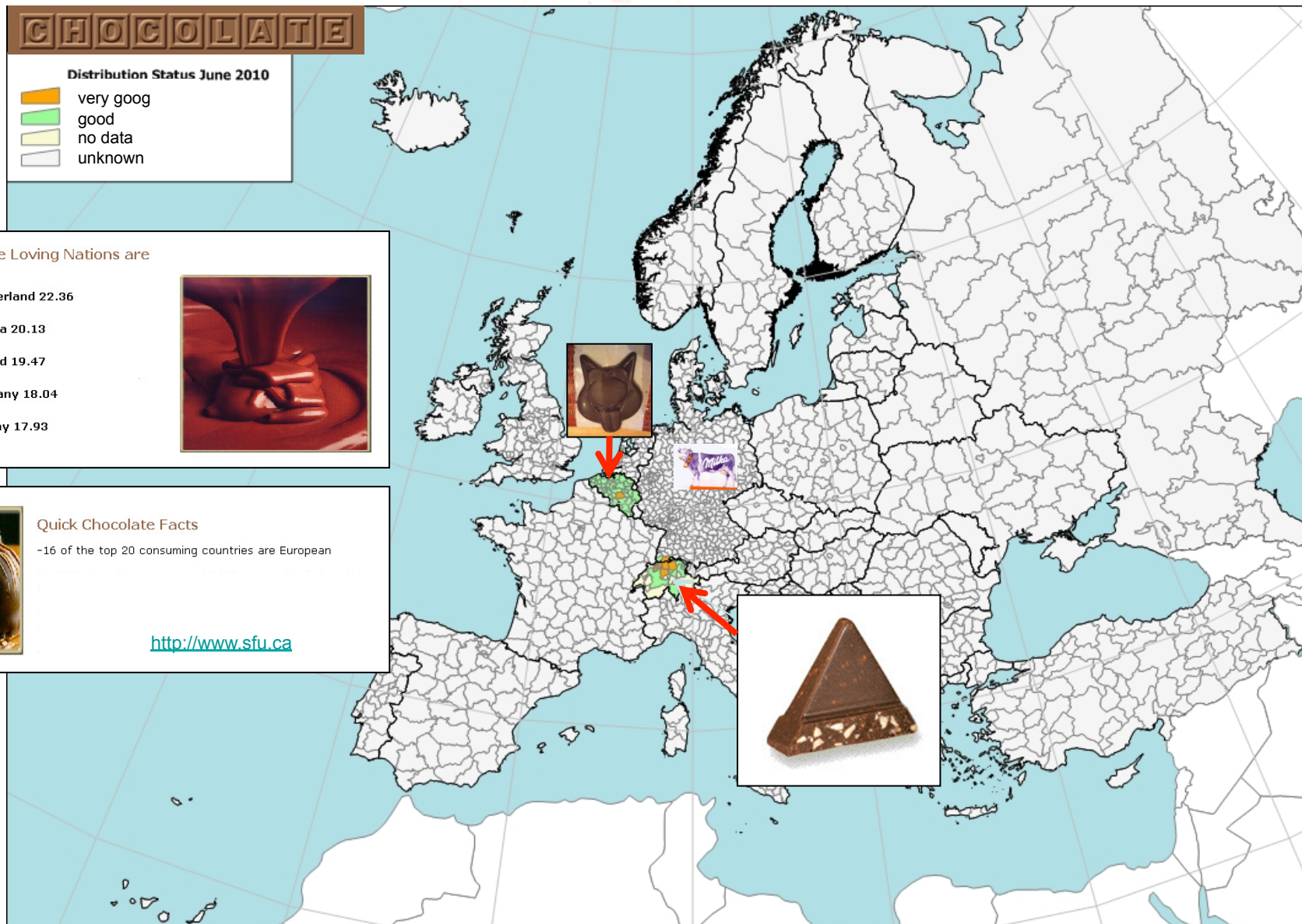
- Availability of the data (shape files): contributors
- Availability of the maps (pictures): all experts
- e-mail sent to all contributor (per vector group) for downloading (shape file or picture)
- dissemination of picture (jpg file) by ECDC

Extension

Mosquito species

- DEN and CHIK vectors / invasive species
 - *Aedes atropalpus* (NL, FR, IT)
 - *Aedes koreicus* (BE)
- MAL vectors
 - *Anopheles* spp.: *An. atroparvus*, *An. claviger* s.s., *An. labranchiae*, *An. sacharovi*, *An. superpictus* (Continental Europe)
 - *An. gambiae* s.l., *An. arabiensis*, *An. albimanus*,... (overseas territories)
- Bancroft filariasis vectors (overseas territories)
 - *Aedes polynesiensis*
- Possible extension
 - New mosquito vectors (introduction; if invasive?)
 - Other vectors related to other pathogens (WNV, other?)

Distribution map of good chocolate in Europe




CHOCOLATE

Distribution Status June 2010

- very good
- good
- no data
- unknown

The Top Chocolate Loving Nations are (lbs/yr):

1. Switzerland 22.36
2. Austria 20.13
3. Ireland 19.47
4. Germany 18.04
5. Norway 17.93

Quick Chocolate Facts

-16 of the top 20 consuming countries are European

<http://www.sfu.ca>

