Table S1. Primer sequences and PCR conditions for mosquito species identification

Mosquito* **(Target gene)**	**Primer name**	**Primer sequence (5'–3')**	**Expected size (bp)**	**PCR condition**
Anopheles spp. (*cox1*)	AnplCox1-F AnplCox1-R	GGATCCCTTCAGCCATTTAATCGCG TCGAGCTTAAATTCATTGCACTAATCTGCC	1,584	94°C: 5 min **40 cycles: 98°C: 10 sec, 56°C: 30 sec; 68°C: 1 min 40 sec** 68°C: 5 min
Anopheles spp. (*cox2*)	AnplCox2-F AnplCox2-R	GGATCCAGATTAGTGCAATGAATTTAAGC CTGCAGGATTTAAGAGATCATTACTTGC	792	94°C: 5 min **40 cycles: 98°C: 10 sec, 58°C: 30 sec; 68°C: 50 sec** 68°C: 5 min
Anopheles spp. (ITS2)	ITS2A ITS2B	TGTGAACTGCAGGACACAT TATGCTTAAATTCAGGGGGT	450 – 1,500	94°C: 5 min **40 cycles: 98°C: 10 sec, 54°C: 30 sec; 68°C: 1 min 30 sec** 68°C: 5 min

Note: *Abbreviation: *cytb*, *cytochrome b*; *cox1*, *cytochrome c oxidase subunit 1*; *cox2*, *cytochrome c oxidase subunit 2*; ITS2, Internal Transcribed Spacer 2; min, minute(s); sec, seconds. Letters in bold indicate amplification steps, including denaturation, annealing, and extension in 40 cycles.

Table S2. Primer sequences and PCR conditions for *Plasmodium* detection in goat blood and mosquito

Parasite (Target gene)	**Primer name**	**Primer sequence (5'–3')**	**Expect size (bp)**	**PCR condition**
P. caprae (*cox1*)	Cox1_PbubF (outer)	GTACATTTACTTTTGGTGGTAC	616	94°C: 5 min **40 cycles: 98°C: 10 sec, 50°C: 30 sec; 68°C: 40 sec** 68°C: 5 min
	Cox1_PbubR (outer)	CCATCCACTCCATAATTCTC		
	PbuCox1-F3-2 (inner)	ATTATGTAATTGCACATTTCCATTTTG	283	94°C: 5 min **40 cycles: 98°C: 10 sec, 60°C: 30 sec; 68°C: 20 sec** 68°C: 5 min
	PbuCox1-4B3 (inner)	CCAAATAAAGTCATTGTWGAACC		
P. caprae (*cytb*)	DW2 (outer)	TAATGCCTAGACGTATTCCTGATTATCCAG	1,138	94°C: 5 min **40 cycles: 98°C: 10 sec, 62°C: 3 min;** 68°C: 5 min
	DW4 (outer)	TGTTTGCTTGGGAGCTGTAATCATAATGTG		
	NCYBINF (inner)	TAAGAGAATTATGGAGTGGATGGTG	822	94°C: 5 min **40 cycles: 98°C: 10 sec, 62°C: 3 min;** 68°C: 5 min
	NCYBINR (inner)	CTTGTGGTAATTGACATCCAATCC		
P. caprae (*18S rRNA*)	rPLU6 (outer)	TTAAAATTGTTGCAGTTAAAACG	1,200	94°C: 5 min

rPLU5 (outer)	CCGTTGTTGCCTTAAACTTC		**40 cycles: 98°C: 10 sec, 55°C: 30 sec; 68°C: 1 min 30 sec** 68°C: 5 min
PlaSSUF1 (inner)	CTTAGTTACGATTAATAGGAGTAG	420	94°C: 5 min **40 cycles: 98°C: 10 sec, 49°C: 30 sec; 68°C: 30 sec** 68°C: 5 min
PlaSSUR1 (inner)	TCCTACTCTTGTCTTAAACTAG		

Note: *Abbreviation: *cox1*, *cytochrome c oxidase subunit 1*; *cytb*, *cytochrome b*; *18S rRNA*, *18S small subunit ribosomal RNA*. Letters in bold indicate amplification steps, including denaturation, annealing, and extension in 40 cycles.